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EVALUATION OF OUTDOOR EDUCATION
USING GUTTMAN SCALES AND SOCIOMETRIC ANALYSIS.

by

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A THESIS
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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled "Evaluation of Outdoor Education Using Guttman Scales and Socio-metric Analysis", submitted by William Garnet Gibson in partial fulfilment of the requirements for the degree of Master of Arts.

ABSTRACT

The purpose of the study was to evaluate the attitude change and social development of Grade VI students from Colonel Walker School in Calgary, who had attended the 1964 and 1965 pilot projects in school camping. The instruments used were Guttman scales and Sociometric questionnaires.

A descriptive analysis of the family background, community environment, academic performance, achievement, ability, and previous camp experience, was made to help understand the responses and behavior of the sample.

Since little research had been done in the measurement of attitudes in the camping field, scales had to be developed and pre-tested before being used. After pre-testing the scales twice and improving the items they were given to the test sample.

The results from the scales were assessed by measuring the amount of attitude change as converted to a Ratio Index (R.I.), considering the percentage of students staying at the upper limits of the scale for pre- and post-tests, and taking into account the percentage of students who remained highly interested on the post-test. A correlation was made between the effect of pre-camping experience and high positive scores, to determine whether "reality shock" had reduced the scores of the non-campers on the post-test. A second correlation was made between high social rank and high post-test scores on scales in social development. The sociometric

data was recorded on tables and the social distance of students in the cabin groups was diagrammed.

The conclusions were organized in three categories; Attitude Scale Development, Attitude Scale Results, and Sociometric Results. In scale development it was found that Guttman scales could be developed, and successfully used with elementary school children if the "psychological object" was a concrete generalized object such as "tree" or identifiable feelings for the child. The scales can be used for samples from the same age category as long as the response of the students is in accord with the Guttman model. A radical rise in M.M.R. on the post-tests does not destroy the value of the scale as a means of showing a strong improvement in the students' attitudes. In addition, items in the scale can be moved according to the response of the students. This procedure also serves to improve the M.M.R. and C.R. ratings.

The results of the Attitude Scales produced five important conclusions: first, the attitude of students toward the areas measured greatly improved; second, reality shock was evident, but was not a major factor affecting the scores; third, girls had the strongest interest in outdoor education activities; fourth, even though little change in attitude was registered by some students, 52.1 percent scored in the high 4 and 5 categories on the post-test; and fifth, outstanding improvement in all but two areas measured by the scales was made in the 1965 camp over the 1964 camp.

The results of the Sociometric data show that in a non-competitive camp, the placing of students in cabins according to high and low social

rank improves group cohesion, reduces the isolates and neglectees, and provides for a greater opportunity for students of low rank to win self esteem. It also gives students of low rank a greater opportunity to assume leadership roles, at the same time forcing those of high rank to compete more rigorously for a position of leadership.

There was an increase in cross-sex choices in both camps. However, when the causative factors were controlled the choices were reduced. As students rise in social rank, they drop former friends and transfer their choice to those who are on their own level, or above.

The students of high social rank did not have high scores in social development, and the students of low rank are more sensitive to the standards of society in regard to competition.

Lastly the experimenter concludes that in opposition to some findings, students who broaden their choice following camp are those who are insecure in their position with the peer group. Those who have a secure relationship with their peers limit their choices.

Recommendations were made that the Department of Education consider a long range pilot project to evaluate thoroughly the use of outdoor schools as a valuable aspect of education.

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CHAPTER I

STATEMENT OF THE PROBLEM

Introduction.

A rapidly changing society has challenged modern educators to re-assess many of the conventional methods used to teach values, beliefs, and concepts. In Canada, less than a century ago, what was taught in the classroom was related directly with man's struggle with the land. Our culture is the reflection of this struggle, and children of this era, to appreciate and understand fully the value systems, beliefs and concepts inherent in Canadian life need to have intimate contact with the rhythms and forces of nature.

One's values depend partly on how a society gains its subsistence. In the pioneer days most parents worked on the land, in the logging camps, along the trap lines, in the mines, or on the fishing boats. Their ability to wrest raw materials from the grip of nature measured the worth of people to the society.

Sensitivity to natural law was enforced by the exigencies of nature; her beauty, grandeur, and caprices. The unhurried pace of rural life left time to respond to the sunrise, the changing colors of the seasons, the quiet stillness in the virgin forests. With the fortunes of survival dependent upon the yield of the earth, the sea, and the forest, men were compelled to have faith. Sudden destruction of the crops by hail, or the fishing boat by storm, or the logging road by a mud slide, caused the human spirit to grow or to shrink in defeat. The elements of belief had a close correlation to this

struggle with the rhythms and forces in the world of nature.

The learning of concepts in depth depends upon the synthesis of fact through contact with reality. Facts learned in the "little red school house" were easily substantiated as one walked homeward across plowed fields, cut trees in the wood lot, or watched the swollen river tear chunks of clay from its banks. These experiences often created a sensitivity to natural law and the subsequent concern for conservation of water and land resources.

In contrast the children of to-day live in an environment that controls to a marked degree the forces of nature. Increasing numbers are spending their entire lives surrounded by those items of civilization created and built primarily by man himself. In this setting values, beliefs, and concepts, take on new meanings dictated by a mechanistic culture. This creates a dichotomy between those foundation interpretations based on natural phenomena, and the new interpretations of the industrial community with its differing tempo, sights, sounds, and smells.

Many parents, educators, naturalists, and conservationists have viewed this dichotomization with alarm. Particularly those who have immigrated from the country setting to the city, want their children to have contact with the soil, the quiet lakes, and mountain paths. Educators are concerned that children make contact with reality to help construct concepts that are objective. Naturalists and conservationists signify that unless people learn to love the forests, plains, and rolling hills, they will never attempt to enact conservation measures for themselves or for the society.

As a result, a growing body of interested persons have pressed during the last twenty years to initiate training for the young in field-trips, summer camps, and outdoor schools.

It was reported (1) in 1952 that Germany had three hundred and forty outdoor camps for youngsters and adults. In Britain, there are thirty-seven, and the United States has more than forty public school systems with camping as a part of their regular curriculum, including teacher training. In Michigan alone there are twenty cities and countries which have over three hundred and fifty-seven schools sending children to camps. In New South Wales the National Fitness and Physical Education Branch reported in 1940 that from a meager start at the Broken Bay Fitness Camp in 1939, attendance at National Camps had grown over the 150,000 mark per year (2).

In Canada this new educational approach has been primarily limited to the eastern provinces where population density has forced some concrete action. The following instances serve as examples; a school of Natural Science located on an island in the Toronto Harbour is sponsored by the Toronto Board of Education. Each year Grade VI classes of boys and girls spend a complete week observing and reporting on marine, bird, and animal life. In 1963 a similar school for Junior and Senior High students was founded in the Albion Hills Conservation area. Influenced by Blanch Snell (3:209-210) and others interested in outdoor education, the Metropolitan School Board of Toronto and the Regional Conservation Authority started this venture in co-operation with the schools in the area.

Further west, in the same year the Regina Public Schools sponsored an Outdoor Education Experiment, when fifteen boys and twelve girls of the Grade VI class from Birchwood School spent four days camping at the Cypress Hills Provincial Park. The Director of Physical Education for the Regina Public School Board, and the Director of the Continuing Education Branch of the Department of Education initiated the experiment. They instituted a program patterned after the Natural Science School of the Toronto Board of Education and included many resource people of the community (3:212).

In Alberta, different individuals representing the fields of geography, biology, and physical education, have attempted at various times to interest the educational authorities in the values of outdoor education as a teaching medium. In 1962 Mr. Garry de Leeuw from the Experimental School in the Faculty of Education made a three day field trip to Hinton to prove the worth of this type of approach in the teaching of Grade VI social studies (4). Pursuant to this successful venture, in 1964 while Assistant Superintendent of Didsbury County, Alberta, he, with the aid of the administrative staff (5) of the Carstairs High School, organized a spring field trip to the Drumheller Badlands.

In 1963 Dr. W. D. Smith of the University of Alberta, Faculty of Physical Education, suggested that a complete school camping experience was long overdue in the province. Interest in such an experiment in Alberta was indicated by John F. Mayell Calgary Public School Supervisor of Physical Education, Mr. Peter Reichenbach Assistant Professor of Physical Education at University of Calgary, the Canadian and Alberta Camping Associations, Mr. Ranald White Assistant Principal at Colonel Walker School, and numerous other teachers in Calgary.

In view of the growing interest in outdoor education it was felt by the committee that the experiment should be evaluated as objectively as possible. Evaluation of a project of this nature encompasses three areas; academic growth, attitude change, and social development. Each has its own particular problems in measurement.

The first, is concerned with learning in depth, the verification of facts learned in school, the fitting of pieced knowledge into the framework of the whole, and the stimulation of relationships and associations. Measurement of this kind of educational experience is close to impossible with the instrumentation devised at this point in educational research.

The second, attitude change is also of import to educators because the learning of world phenomena is dependent upon interest in the subject matter, and one's feelings for or against it. A reliable technique for measurement of this area has been devised by L. A. Guttman (6:172), a leader in the field of attitude testing.

Social development in terms of successfully living with those people in one's environment has been evaluated in a number of different camping situations (7, 8, 9, 10). Most studies have used the sociometric questionnaire and from it measured the social distance of the participants. The techniques used by Northway and Lindsay (11:24-25) and Gronlund (12) have produced reliable information and will be used in this study.

The Problem.

The purpose of this study is to evaluate the attitude change and the social development of Grade VI students from Colonel Walker School in Calgary who attended the 1964 and 1965 pilot projects in school camping at Bragg Creek. In order to achieve this objective, a

descriptive analysis of the total camp experience will be documented, Guttman attitude scales developed, and sociometric questionnaires constructed. The descriptive analysis of the camp experience is necessary to give meaning to the responses given on the test instruments.

Subsidiary Problems.

1. To describe the procedure used to develop the Guttman scales in order to further experimentation in the area.
2. To determine whether the placing of children in social groups according to social status helps to develop stronger friendship ties.
3. To correlate the relationship between high and low status by cabin group, and results on the attitude scales.

Importance of the Problem.

Objective evaluation of every aspect of camping is needed to satisfy those expending effort and money in this area. At a time when educational costs are spiralling, authorities must be cautious how they spend the public funds. As a new movement, school camping will gain in stature if tools for measuring the accrued results of the experience can be devised.

The field of attitude measurement is important because learning and value concepts determine the actions of people. One of the prime objective of the camp is to foster more positive attitudes toward science, natural history, health, conservation, outdoor skills, aesthetic values, and other people. At this stage in the school camping field (to the best of the experimenter's knowledge) there has only been one reputable scale devised dealing with this type of attitude measurement.

Jensen (13) in graduate work at Iowa State University, developed a scale using the situation response pattern. The type used is a

variation of Remmers' (14:10-11) summated type attitude scale. He listed this type of scale, terming it a behavior scale as a basic method of attitude scaling. The subjects read about the situation which describes an attitude object. They then respond by choosing one of a series of numbers which indicate degree of intensity toward or against. The total scores for the scale were then determined by summing the responses to the separate situations. The items were checked by fourteen judges selected from leaders in the fields of camping education and administration. To test the readability of the questions, they were submitted to the Ohio State University Bureau of Education Research.

Since the Guttman technique for internal consistency produces reliable scales, it is of importance to have such scales constructed. Not only will they provide a basis for further testing in this area, but the evidence received will be considered more valid than any information as yet collected from students of this age group in the camping situation.

In a complex society, development of skills necessary to interact successfully with others is essential for every child. Each person needs to feel his individual worth, and to be held in esteem by his peers and adults. Helen Jennings (15:5) has stressed the importance of this aspect in stating:

As children mature, their interests in effectual relations to one another broaden, parallel to their expanding capacity to get satisfaction from social intercourse. Children need approval from others of their own age possibly more than approval of their teachers. They need to grow in their ability to appreciate others, to assess themselves through the eyes of others, and to make a place for themselves

They should have opportunities for socialization, for the exchange of ideals, for helping one another, and for exploring one another's personalities. Without such opportunities their perspective will be fore-shortened, their skills for contact with others limited and their initiative in reaching out toward people inhibited. This development cannot take place naturally when interpersonal contacts are not sanctioned or when natural inclinations and affinities are disregarded in the social arrangements provided.

Research done in the field of sociometry has indicated that friendship patterns can be developed by structuring the group process. Since the children in the school camp are usually in cabin groups, it would be well worth knowing what structure promoted greater friendship growth. Research by Sherif and Sherif (16:541-571), and Sherif, White, and Harvey (16:541-571), stressed the power of the group, under wise leadership, to help children grow in social skills. Evidence to substantiate their findings and to throw light on how camping personnel can really help the estranged, maladjusted child, is of value in itself. It is with this concern in mind that the research in the area of social development was undertaken.

Scope and Limitations of the Study.

The research in this study is confined to the development of a Guttman attitude scale and the measurement of such aspects as interest in science, social studies, conservation, and outdoor skills, sharing with others, competition, and aesthetic values. It is also concerned with the social growth of students at the camp, and methods that can be utilized to achieve this end. A short descriptive analysis of the camp development and operation should give meaning to the evaluation.

All groups were tested immediately before and directly following the experience in the school camp. The results pertain only to the six days at camp but were strongly influenced by the classroom teaching before camp.

The conclusions arrived at from the two areas studies cannot be used to draw general conclusions pertaining to all school camping. This was not a random sample but a select sample from Colonel Walker School, limited to the upper-lower class socio-economic section of South East Calgary (Fig. 4).

Sixty-one children from Mrs. Gauley's Grade VI classes at Colonel Walker School participated in the spring terms of 1964 and 1965. In addition, 117 boys and girls from two Edmonton Public Schools and the Carstairs Public School, were used in the test development.

The data obtained can be used as a guide to further study. It will provide a bases for a more objective analysis of children's attitudes in regard to outdoor learning experiences. The results from the sociometric research should reveal some insights into how social organization will benefit the child's personality and character growth. However, until additional long range studies are conducted on all aspects of the outdoor school experience only limited conclusions can be drawn as to its worth for children or adults.

Definition of Terms.

Outdoor Education. Outdoor education includes all direct learning experiences that involve enjoying, interpreting, and wisely using the natural environment in achieving, at least in part, the purposes of education.

Organized Camping. An educational enterprise, located in an out-of-doors environment, which provides children with the opportunity (a) to live, work and play in a group situation, (b) to attain experiences and insight into many of the basic processes of life, and (c) to receive guidance from a mature counsellor.

School Camp. An organized camp which is conducted during the school year, and is under the direction of educational personnel. The project is sanctioned by the Calgary School Board and conducted by the staff of Colonel Walker School in South East Calgary.

Student. A Grade VI boy or girl from Colonel Walker School.

Psychological Object. Any symbol, phrase, slogan, person, institution, ideal, or idea, toward which people can differ with respect to positive or negative effect. The United Nations, a political party, the title of a book, a minority group, a nation, labor unions, and a particular food, are all examples of psychological objects (6:2).

Attitude. Is the degree of positive or negative effect associated with some psychological object (6:2).

Universe of Content. Includes all possible statements that could be made about a psychological object.

Attitude Scale. A series of questions that will accurately draw from the respondent intensity of feeling from positive to negative.

Internal Consistency. The degree to which the series of items which are given a single total attitude "score" are really interrelated and can be accepted as having a single attitudinal meaning, rather than a mixture of different kinds of attitudinal responses.

Natural Science. That branch of science dealing primarily with flora and fauna, meteorology, geology, and topography, in its more rudimentary terms.

Conservation. It is defined as the wise use of natural resources and their preservation and appreciation.

Attitudes toward Others. The values a student adheres to in his relationships with his peers and adults particularly in the area of sharing.

Attitudes in Competition. The attitudes a student has toward self and others under the stress of competition.

Outdoor Skills. Those skills used to survive in the outdoors; such as axemanship, fire lighting, shelter construction, use of the compass, and finding directions.

Aesthetic Values. Those intangible feelings about the beauty of nature, the reverence for life, the response to a Creator, evoked in the outdoor experience. It involves a discrimination between what is beautiful and what is ugly as distinguished from the moral and the useful.

Sociometric Test. A questionnaire which asks pupils to name who they would like to associate with for various real activities.

Criteria. This indicates the area in which choices are referred to such as play, or work, or leisure, etc.

Isolate. For the purposes of this paper an isolate will be a person who does not receive a choice from anyone in the group.

Neglectee. For the purpose of this paper a neglectee will be a person who receives only one choice.

Social Skills. The knowledge which enables one to work, play, and communicate effectively with others.

Work Leader. That person in any group who has particular skills and knowledge about the environment which makes him valuable to the aims of individuals or the group.

Psych Group Leader. That person who through his personality satisfies the emotional-social needs of others.

Hypotheses.

Attitude Measurement.

1. The expected positive increase on the attitude scales pertaining to Science, Social Studies, Conservation, Social Relationships, Outdoor Skills, and Aesthetic Values, will not occur due to expected high pre-test scores caused by pre-camp enthusiasm developed in the classroom.

2. The impact of "reality shock" on those children who have not been in the country environment previously will affect the objectivity of the attitude scale scores.

Sociometric Measurement.

1. When children are put together in small groups where they must solve common problems and interact together, they will develop a stronger friendship bond with those in their group than with those students outside the group.

2. In 1965 it was hypothesized that if students were placed in the cabin groups according to social rank that this would be a strong factor in establishing ingroup cohesion.

3. In addition to Hypothesis No. 2, in 1965 these hypotheses were also used, that when students of low rank were placed together it would provide for a greater opportunity for individuals to win self esteem. This would also force those in the group with potential leadership ability to assert themselves. Correspondingly it was hypothesized, that when those of high rank were grouped together, a struggle for leadership of the group would result.

4. When children are placed together for social as well as academic activities the cross sex choices increase.

5. Under the guidance of a sympathetic counsellor and in an environment that emphasizes friendship, neglectees and isolates will rise in group esteem.

6. A high sociometric position will be associated with a high score in the scale values, related to sharing and caring for others, and behavior under the stress of competition.

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CHAPTER II

REVIEW OF THE LITERATURE

The areas of research in the literature were confined primarily to the philosophy of outdoor education and school camping, attitude scale development, and the application of sociometric questionnaires. A number of theses were procured from universities in the United States, while the rest of the information came from books, periodicals, and articles.

I. OUTDOOR EDUCATION

Growth of the Learning by Experience Approach to Education.

In her comments on "Why School Camping" Joy B. Nash (1:500-507) stated that the roots of the camping movement go way back into history. A Greek philosopher suggested a vacation period for the children so that they might acquire some education. David Starr Jordan sent his pupils to study the "Grasshopper" rather than read about it in books. Grundtvig, the Danish poet, statesman and divine, shocked traditional society in the Scandinavian countries in the eighteenth century by urging the establishment of the Folk Schools and Peoples Colleges, and incurred the disfavour of both the church and the school. The whole Folk School movement was a learning for "living". On the contrary here, education has become synonymous with that which went on in the school room and with poor teaching, "the I tell you . . . you tell me method".

From the days of Rousseau (2), when he advocated that a child should discover science by his own experiences with the natural world, educators have advocated first-hand experiences. Pestalozzi (1746-1827) (3:173), a disciple of Rousseau, contended that studying from a textbook filled the child's mind with hazy ideas and meaningless words, whereas teaching through observation and direct experience gave him clear ideas, greater knowledge and more natural experience in oral expression. In his Diary he beseeched teachers to get the children out of the classroom:

Lead your child out into nature, teach him on the hill-tops and in the valleys. There he will listen better, and the sense of freedom will give him more strength to overcome difficulties. But in these hours of freedom let him be taught by nature rather than by you. Let him fully realize that she is the real teacher and that you, with your art, do nothing more than walk quietly at her side. Should a bird sing or an insect hum on a leaf, at once stop your walk; bird and insect are teaching him; you may be silent.

Herbert Spenser (3:170), enamored by the concept of evolution proposed by Charles Darwin, tried to equate the biological organism with human society. In his views on education, he pressed for a movement toward teaching those things that were of worth to the individual later in life. Science to him was a way of life, and through his efforts it was introduced into Harvard University - astronomy, natural philosophy, natural history, and the text book, began to be supplanted by laboratories. In our own century Breed and Dewey (4:284-303), have both re-enforced the concept that experience is one of life's most valuable learning situations. Dewey (4:284-303) (5:55-60), went so far as to say that nothing in life is independent of experience, education is not mind looking on matter, but mind experiencing phenomena. Since

Dewey and his followers entered the scene, the realm of experience in education has been elevated in the learning process. Today educators are using field trips, models, laboratories, films, and television, to bring first-hand experiences to children. What better method than to take the children to the environment itself? If it is important to utilize all the senses, why not the sense of touch, the sense of smell, the temperature change, as well as that of seeing and hearing?

The Committee of the "American Association for Health, Physical Education and Recreation" is an article (6:1-4) on Outdoor Education for American Youth, wrote that outdoor education is a common-sense method of learning. It is natural; it is plain, direct, and simple. The principal thesis is "that which can best be learned inside the classroom should be learned there. That which can best be learned in the out-of-doors through direct experiences dealing with native materials and life situations should there be learned". They further wrote, that this is not another discipline with prescribed objectives like mathematics or science; it is simply a learning climate which offers special opportunities for direct laboratory experiences in identifying and resolving real-life problems, for acquiring new skills with which to enjoy a lifetime of creative recreation, for attaining attitudes and insights about working with other people and getting us back in touch with those aspects of living where our roots were once established.

Attitudes Toward Nature and Conservation.

Janet Nickelsburg (7:1), stipulates that nature-study should be a joyous experience within reach of everyone. In defining what it should be she states:

... nature study is not so much the learning of names and classifications as it is an attitude of mind.... It is the ability to see a story in a drop of water, to construct an adventure from the silver ribbon left on the ground by a passing snail, to watch and wonder at the banking and turning of the gull in flight, and to interpret the coming storm by the shape and movement of the clouds. Inherent in nature-study is the desire to stop and watch, to study and to correlate what one sees with the world in which one finds it.

Pike (8:79-91) claims that certain basic scientific concepts can be demonstrated in the outdoor education program at the elementary level. After making a careful summary and review of these concepts, it was possible to group them into two broad categories, (a) those which are concerned with understanding the nature of the visible world, and (b) those which are concerned with the relationships between forms. The importance of these concepts in a culture which has lost much of its direct contact with the outdoors is emphasized when we consider the extent of man's ultimate dependence upon the physical environment. He also re-enforced this argument in a further article in "Science Education" in 1962 (9:141-145) where he argues that one of the foremost goals of education is conservation and an intelligent regard for the nation's resources, and that the application of the principles of learning stress the importance of direct experience in developing the necessary attitudes which influence behavior. It is no longer possible to be concerned solely with the teaching of skills in activities that people will practice out-of-doors, but perhaps more important that people also know how to use and care for the natural environment whatever their purpose for being there.

Thus the school camp provides an excellent place to develop attitudes because of the stimulus of the environment and the need of children to satisfy their curiosity. The enthusiasm and knowledge of the counsellors and resource people can be transferred to the child thus shaping his attitudes for the future.

Thousands of words everyday are spoken about conservation, but how can children really develop an attitude toward something by merely hearing words? Hoffmaster (10:516-521), Director of the Department of Conservation for Michigan writes:

For years we whose business it is to enforce or promote conservation laws and principles have seen the need of a much greater understanding of Nature in the part of people ...adults and youth alike. Long since we have learned that hunters and fishermen cannot be coerced into complying with law or into exercising ordinary woods and water manners, by and through policemen alone, regardless of the officers efficiency and adroitness. We think it is demonstrable that law, obedience and the niceties of sportsmanship must come from within.

The motivating force that will cause people to use rubbish containers rather than to throw rubbish wherever they happen to be, lies not in the park managers and their aids. It must be part of the park user.

He points out that outdoor education through schools is still too new to bring material benefits to the resources of the United States. However, when it is built into every curriculum, there can be renewed hope, but until that time conservation like health is likely to be an over-worked term with a half-hollow meaning.

Fitness. Development in the Camp Setting.

The out-door school provides an excellent laboratory for the teaching of the importance of "total fitness." The A.A.H.P.E.R. Fitness Conference of 1956 as reported by Kidder (11:8) states that:

Fitness is that state which characterizes the degree to which a person is able to function. It implies the ability of each person to live most effectively within his potentialities. Ability to function depends upon the physical, mental, emotional, social and spiritual components of fitness, all of which are related to each other and mutually interdependent.

Fitness therefore involves all the components of the whole organism in interaction with his environment. Many of these components can be gained in the camp setting itself. The area is away from the smog and dirt of the big city. Transportation is not provided for the adventurous child. He must walk and run wherever he goes, stretching and strengthening the muscles of his legs and forcing his cardio-respiratory system to expand and develop. The tension and stress of highly organized competition found in baseball, football, and hockey should be absent. This is a time when the environment can normalize the stress of competition one often finds in highly organized communities.

In terms of health the school plant at best is an artificial and unreal setting designed for formal classroom teaching. The camping program provides the teacher with her own real laboratory for this subject. Factors contributing to healthful environment are there; living in the open with plenty of fresh air and sunshine, physical exercise, well-balanced meals, a free and relaxed atmosphere, regular sleeping hours, lots of fun and recreation, periods of rest and relaxation, and few if any external pressures. The students may learn and practice day after day the teachings according to accepted standards concerning health attitudes, health knowledge, and health practice.

The entire teachings of good health practices may be stressed and practiced in the activity programs at camp. Such things as bodily cleanliness, diet planning, food care, service, preparation and disposal, sanitation, insect control, first aid, climate and weather protection, necessity of body protection, become real factors, particularly if students spend an overnight in their own out-of-doors shelter. Then all facets truly become important. As an example the meaning of water purification can be taught in its larger sense because here we must purify the water. The students participate and this in turn creates an interest in purification of water for their home town and city. Since the teacher or counsellors are present for twenty-four hours per day the child is under a continual consistent approach to healthful living (3:328-353).

Impression of Program and Personnel.

Gilliland (12:516-521), Associate Professor of Education, University of Tennessee, points out the importance of the attitudes of teachers in the camping situation. He states that it does not necessarily follow that merely taking boys and girls out of doors assures a good camping program. It all depends upon the type of program offered. Unless the camp curriculum is planned and carried out as part of the total school curriculum doing those things that can best be done there, the school camp is not justifiable. There must be more to school camping than just taking people out of doors. The situation and environment must be utilized and interpreted by people enthusiastic about conservation, nature, and nurture.

In the camp situation, the number of people with whom a child can identify are limited. At home he not only has the heroes of television and the radio to identify in, but also a wide variety of real people. This contrast, at camp is offset by the continued association the child has with the camp personnel which often produces a deeper identification in one or more people than would normally occur.

Cronbach states (13:314):

Everyone the child encounters is a possible identifying figure, yet he identifies with only a few people. His choice reflects the sort of person he is, and helps to determine the sort of person he will be. A teacher may set the best of examples, yet only a few of the students will identify with him and take over many of his patterns. Each pupil selects among his teachers and some he depends on as models far more than others.

The learner seeks identifying figures who will support him. This means that if he can the learner identifies with someone who seems to like him in return.

In the camp situation the counsellors have an opportunity to act within the framework of a friendly atmosphere with the students.

Lewin, Lippitt, and White (14:340-355), found that creating different "social climates" for eleven year-old boys by varying the manner in which the adult supervisor worked with them in their projects, produced radically different results. The autocratic supervisor who gave orders became a communication center rather than one to whom loyalty was given. On the other hand the adult who participated as a friend, worked with the boys on their project, and went along on agreed plans, developed a spirit of co-operation, group initiative, and loyalty.

This is not implying that the teacher cannot be one in whom a student identifies, but does imply that the possibility for more friendly

atmosphere can be found in an environment where there are small groups. Furthermore, the people in the camp situation are usually enthusiastic about nature and out-door life. Presumably if there is identification in models who are intensely interested in the beauty and majesty of nature, and who are vitally concerned about conservation, a similar attitude will be transferred to the student.

Dr. Elton B. McNeil, Associate Professor of Psychology at Michigan, reiterates this viewpoint in saying (15:31-37):

I am stating a simple clinical truth that the primary agent of change in a human being is to be found in his fellow human being. I insist that while "things" make a difference in the development of each of us, they can never match the contribution to growth provided by a sensitive adult in contact with an impressionable child. "Things" make a difference and they ought to be explored in greater depth, but the application of research technology to camps really needs to focus on people and how they interact with one another, if we are ever to advance the camping movement beyond the long honeymoon with fun and games or vague references to character formation.

People will make the difference in this new type of educational project — people in their environment guiding students through the mysteries of the natural world to a fuller understanding of life itself.

Democratic Group Living.

Manley and Drury (16:13-18) stress the viewpoint that one of the most significant aspects of school camping is the opportunity for "Democratic Group Living". Education does not merely involve the cramming of facts in specific areas of learning, but it must prepare youth to know, to think, to feel, and to do. Since democracy is founded on the principle that man can and will think, education for living in a democratic society needs, then, to teach him how to think by giving him unlimited

opportunities to practice. Camping offers a fine opportunity for this type of education by presenting opportunities for living with others, for the development of individual responsibility, and it affords many occasions for acquiring the skills of knowing, thinking, feeling, and doing.

McMillan (17:4-6) also stresses the point that the camp offers a unique opportunity for children to live and work together. She also states parents hope the camp will correct various undesirable types of personality traits: some hoping that camp will correct various undesirable habits that they as parents have been unable to remedy, or to strengthen character through learning to live with others and participating with others in group activities. The child learns to value his vote in making decisions and that his views are of worth because the decisions he makes determine the group activity.

II. ATTITUDE MEASUREMENT

Attitude Theory.

Lambert and Lambert(18:50-52) state that an attitude is an organized and consistent manner of thinking, feeling and reacting with regard to people, groups, social issues, or, more generally, an event in one's environment; that its essential components are thoughts and beliefs, feelings (or emotions) and tendencies to react; that attitudes are formed, when these components are so interrelated; that specific feelings and reaction tendencies become consistently associated with a particular way of thinking about certain persons or events. Feelings and reaction tendencies, two of the components

of attitudes, are learned through association and need-satisfaction; that is, we learn to fear and avoid people or events associated with unpleasant occurrences and to like and approach those associated with pleasurable happenings. An experiment by Lott and Lott (19:297-300) in 1960 with grade school children lends evidence as to how attitudes are learned through both association and need-satisfaction. The hypothesis was to see if a child developed positive attitudes toward others if while in their presence he was pleasantly surprised. The children were divided into groups and given interesting games to play. During the games some were given toys as prizes. Other groups received none. Some time after the game the author asked the groups to name two children with whom they would like to spend a holiday. The results showed that more children who had been with groups that received prizes wanted to be with members of these groups to spend a holiday. The study lends support to the basic principle that attitudes can develop and be intensified by the rewards or disappointments that we experience with a particular group.

The third component of attitudes are thoughts and beliefs which tend to be acquired more by "transfer". Feelings and reaction tendencies toward events and others are often characterized in the early stages by the individual's inability to comprehend why he feels and acts as he does. This lack of understanding makes him particularly attentive to the thoughts and beliefs of others; it lends meaning to his feelings and reaction tendencies. As children, we normally are attentive and usually adopt the attitudes of our parents, assuring ourselves of affection and at the same time strengthening our

feelings of belonging to the family. The same thing occurs with important people outside the group, or when we desire to join a group. We select those attitudes that will preserve our need satisfaction. This in effect is transfer.

Cronbach (13:326) defines an attitude as:

...the meanings that one associates with a certain object (or idea), and which influence his acceptance of it. These objects may be specific and concrete...my favorite red necktie...or as intangible as the United Nations or monogamy. An element of acceptance or avoidance is present in any attitude but additional associations are involved. What is your attitude toward coffee? Let's say you drink several cups a day. That implies you like it. But we can go further and find that you drink regularly for breakfast, never in midmorning except as a social ritual when there's a chance to chat over it, never at night except at a company dinner. Moreover you never drink coffee unless you can get fresh cream with it. With enough observation you can infer a very complex attitude.

He also concludes that each attitude is built on other attitudes, and that positive associations with an experience bring about a positive attitude, particularly if this experience is re-enforced.

Attitude as Action Response.

Thurstone (20:6-7) in his book The Measurement of Attitudes states that:

The concept "attitude" will be used here to denote the sum total of man's inclinations and feelings, prejudices or bias, preconceived notions, ideas, fears, threats, and convictions about any specific topic....

The concept "opinion" will here mean a verbal expression of attitude. If a man said, that we made a mistake in entering the war against Germany, that statement would be called his opinion. The term "opinion" will be restricted to verbal expression. But it is an expression of what? It expresses an attitude, supposedly. There should be no difficulty in understanding this use of the two terms. The verbal expression is the opinion. Our interpretation of such an

expressed opinion should be that of the man's attitude is pro-German. An opinion symbolized an attitude.

Our next point concerns what it is that we want to measure. When a man says that he made a mistake in entering the war with Germany, the thing that interests us is not really the string of words as such or even the immediate meaning of the sentence merely as it stands, but rather the attitude of the speaker, the thoughts and feelings of the man about the United States, and the war, and Germany. It is the attitude that really interests us. The opinion has interest only so far as we interpret it as a symbol of attitude. It is therefore something about attitudes that we want to measure. We shall use opinions as the means of measuring attitudes.

He also points out that the opinion does not have to be translated into action, but could be translated into action.

A recent experimenter, Cooley (21:320-326), has stated that the best way to ascertain an attitude or value system is through a person's application and action. His attitude inventory requests people to check off actual activities, such as belonging to a science club, going to historical movies, or collecting various kinds of rocks. If a person does not transfer an opinion in action he has not, in accordance with this author, a truly positive attitude toward the activity. The experimenter, however, is in disagreement with this concept and is supported by a number of psychologists one of whom, Allen L. Edwards, states (22:6):

In many cases, behavior is designed to conceal feelings. We are all aware of situations in which we acted contrary to the way in which we felt, because of various reasons. If a man dislikes fish - that is, has an unfavorable attitude toward fish - he might not choose to express this attitude at a dinner party at which fish is served because of his desire not to offend his hostess.

... there is no necessary one-to-one correspondence between overt behavior and attitudes. Attitudes, as factors influencing or determining behavior may be one of many such, and not necessarily the most prepotent.

Lambert and Lambert (18:50-52) write that we are not fully conscious of most of our attitudes nor are we aware of the influence they have on our social behavior. Often if one examines himself carefully, he can actually sense his reaction in terms of suspicion or fear that he has toward another person or group. Through introspection we can become conscious of attitudes functioning within ourselves, and in so doing become sensitive to the attitude of others. People do not always reveal their attitudes; they learn by experience to keep certain attitudes hidden from casual acquaintances, or even intimate friends. The authors use the words "reaction tendency", for a component of attitudes in order to indicate that they are not necessarily expressed in overt behavior.

Characteristics of Grade VI Pupils.

It was concluded that before attitude scales could be developed that information on the physical, emotional, and social traits, of primary children would have to be reviewed. With regard to physical growth rates, Musson and Conger (23:316-317) state:

His height increases during the middle childhood years at the rate of 5 or 6 percent a year, his weight at the rate of somewhat over 10 percent a year. By the time he reaches the age of 12 his height has increased about 60 inches and his weight to between 95 and 100 pounds.

Up until the tenth year, boys, on the average, are slightly taller than girls. However, from then until about 15, girls are, on the average slightly taller than boys - as any dancing school instructor can testify (88).... The pattern is similar with regard to weight. Until about 11 years of age, boys are slightly heavier than girls, but after that age girls weigh more (88). The child's body proportions are already much like the adult's. The slight changes in build which occur in this period...result largely from lengthening the child's limbs.

The 12 year-old's bones are becoming harder, his blood pressure and pulse rate decrease, and concomitantly muscle tissue increases proportionately. This rapid growth demands more food and consequently a concern for eating. On the whole the child becomes better integrated and better co-ordinated, becoming more capable of more complex motor and manipulative tasks. From 6 to 12 years wrist muscles improve rapidly reaching almost adult level of perfection at twelve. This tends to create an even greater drive to test oneself in all those activities defined by the society as worth while and exciting.

At this point many 12 year-olds are on the brink of puberty. Cronbach (13:8) points out that adolescence has no true boundaries for the growth rate (and also interests and attitudes begin to change before puberty). The growth rate may come anywhere from ten to fifteen, the peak for girls coming at about twelve and a half years; for boys about eighteen months later, at age fourteen. Even a class of high school juniors may include boys who are still children physically. This creates a problem emotionally for children in that they are concerned about the changes or lack of them in their bodies.

At the same time the new interest is in becoming a man or a woman (24:318).

The perception that the male adolescent develops of maleness in our culture is strength. Every boy wants to be tall and strong.... The boy wants to excel at sports; he is sometimes painfully aware that this is his dad's fondest dream. During early adolescence the boy is concerned about being a good athlete. He frequently takes as his model someone who excels in sports. He compares size and strength with that of his peers. He must convince himself he is really a man....

The girl's perception of femininity is grace, charm, gentleness, social service, sociability, and beauty. She is concerned about the proportions of her figure. She recognizes her feminine role is "to please". Her ideas of the perfect figure come from Hollywood.

Attitudes, Beliefs and Values. Rath (25:35-39) in the National Elementary Principal, wrote that a value is a belief, attitude, purpose, feeling, or goal, that (1) is prized, (2) is chosen for consideration of alternatives, (3) is affirmed upon challenge, (4) is recurring, and (5) penetrates into life. These criteria must be met before feelings, beliefs, attitudes, purposes, or goals, may be classified as values. For example, a person may cherish the beliefs of a certain faith or religion, but fail to live according to the tenets of his religion. In other words if the belief does not penetrate into life according to the definition of this person's values, he really does not have his religious learning.

Culture often defines what aspects of life are to be most valued. It places value ratings on what activities are honorable and what are dishonorable. With girls, but more so with boys, our society tends to give greater rewards for competition, than for co-operation. The legends, myths, and hero worship, center around the rugged individualist.

Garrison (26:160-169) believes that attitudes and beliefs are "soaked up" from the milieu in which the child develops. The nature of these attitudes and beliefs develops and changes as a result of the influence of their families, community morals, religion, and peer culture. He found through questionnaires that the things adolescents appear to be most interested in are (1) sports, play, games, (2) radio, movies, theater,

comics, (3) areas of study, reading, school subjects, (4) people, both relatives and non-relatives, and (5) crafts and mechanical arts.

In asking what factors children dislike, the experimenter from his experience with children, supported by the research of psychology, hypothesized that those factors that are distasteful are usually those areas where the society sets unachieveable goals. For many of the children, school, and some of the threats of the classroom, support these feelings. As Jersild (27:609) states:

...the school constantly and perpetually, day in and day out, year after year, reminds great numbers of children that they are not much good. To a large number of children who do not happen to have the kind of intellectual and conformist tendencies which are praised in most situations of learning the school dispenses unfavorable comparison, reminders of failure and implied rejection on a colossal scale.

...when a person fails in a given test in life, such as an important assignment at school, it is difficult for him not to view this as a test of him as a person....

Components of Attitude Scales.

The Psychological Object. In the construction of attitude scales research personnel have found that all questions or statements presented must refer to one "psychological object". A concerted effort must be made to restrict the area which one is attempting to measure. An example of this particular problem is conservation; questions cannot be asked without considering the full implications of this concept. First, what does conservation mean? Is the tester searching for a particular aspect of conservation, and is this aspect part of the respondent's knowledge? To one, conservation will mean fire protection, game laws; to another, preservation of natural resources; to another, a study and appreciation in depth of all natural phenomena.

Hoover and Schutz in their "Factor Analysis of Conservation Attitudes" (28:54-63) found that conservation attitudes are multi-dimensional. Several dimensions must be considered in accounting for an individual's attitude. Ten clear cut factors were obtained in this study:

1. Combating superstition, ignorance or tradition.
2. Conservation as an expediency measure.
3. Immediate personal gain and conservation.
4. Personal independence over federal conservation measures.
5. Conservation to eliminate waste.
6. State regulation of natural resources.
7. Long-term conservation projects for large groups of people.
8. Personal independence over localized conservation practices.
9. Conservation of vested interest.
10. Federal conservation measures which would tend to strengthen the national economy in the long run.

Each one of these ten areas could include a number of psychological objects. This necessitates, therefore, extreme care in choosing questions (items) that will represent a particular universe of content. They should include all the possible statements that could be made about a psychological object.

Scale Items. When one proceeds to develop an attitude scale little material can be found on school camping. At present, there are few scales of any kind constructed to measure the attitudes of children or adults in the areas of natural science, conservation, social studies, sharing and caring for others, feelings and behavior in competition, outdoor skills, and aesthetic values. These scales were found, and were used in the compiling of items.

Hoover and Schutz (28:54-63), in the development of their conservation scale, followed the Likert technique. Each of the items presented a brief hypothetical situation to which the subject might react on the five point scale, in terms of his approval or disapproval of the action suggested in the item. They clustered their items around the following headings:

1. Assistance for the Common Good.
Example - Certain industries should be subsidized by the federal government until they are in a position to withstand foreign competition.
2. Regulation for the Common Good.
Example - At certain seasons of the year smoking in state forest areas is prohibited.
3. Private Rights Versus Conservation.
Example - Overgrazing of private range land should be permitted.

Responses in the positive, for questions under heading No. 1, reflect concern for rendering assistance for those who are in need. This would be largely financial aid through government channels. Responses in the positive, for questions under No. 2, reflect concern with public regulation for the purpose of protecting interests of the people generally. All those scoring high for questions in No. 3, will favor good conservation practices even though it may interfere with private rights.

Items used by Cooley and Reed (21:320-326) in their measurement of science interests were worded in the following manner:

1. Would spent extra time on science homework because I like it.
2. Will volunteer to answer questions in science class because I am interested in the topics.
3. I would like to make a rock collection.
4. Will read news about animals if I get a chance.

5. Visiting a science museum is fun.

6. I want to work with others on science projects.

This type of test is based on the principle that if people are really interested in science they will try to participate in science activities. Over twenty-seven items were used in the questionnaire.

Jensen (29) developed a scale using the situation response pattern, a variation of the Remmer's (30:10-11) summated type attitude scaling. In this scale a typical camp situation was described presenting a word picture of an out-door situation. Questions were, then, asked to indicate what degree of intensity students had in regards to the situation.

Other sample questions and scale types were also observed. McCue (31:205-209) developed a rating scale concerning competition. Hollenbeck (32), for her Doctorate Degree in Education, developed a forced choice questionnaire on science where the response was simply yes, or no. Information as to what might be the form of the proposed scales on camping was also found in research by Gerald Mahoney (33) from McGill University. He constructed nine component scales which emerged from the Guttman scale analysis, on Morale in an Industrial Situation. An example of his scale form is as follows:

Feeling of Status - Work Situation

1. If a promotion or a training course leading to a promotion were to come up in your section, do you feel that you stand:

(a) a much better chance than most men in your section ... __

(b) a slightly better chance than most men in your
section

- (c) just about the same chance as most men in your
section _____
- (d) a slightly poorer chance than most men in your
section _____
- (e) a much poorer chance than most men in your section .. _____

Scale Types.

Bogardus Scale. The development of opinion scales was originally started by Bogardus (34:229-308) in his study on prejudice. He devised a series of statements representing different degrees of social intimacy for varying social groups. The subject is asked to mark statements he considers appropriate for specific ethnic groups, such as Negroes, Jews, and Turks. This test was only of value in assessing attitudes relating to racial or ethnic prejudice.

Thurstone Scale. Many attitude scales have been based on procedure developed by Thurstone (20) (22:20) in 1929. The first step involves collecting a large number of statements representing various stands or positions on the issue. These are then given to a number of judges, who are asked to sort them into eleven piles according to the stand or position represented by each statement. Thus, statements representing the most extreme stands on the issue are to be placed in the end piles, while those representing the neutral or moderate stands are to be placed in the middle piles.

When there is considerable disagreement among the judges about the position or stand of a particular statement, it is discarded. The final scale is composed of eleven or more statements that represent clearly defined positions on each issue. Each of these final statements

is then assigned a scale value based on the median scale position given by the judges. If half the judges for example had assigned a particular statement to position 3 or lower, and half had assigned it to a position 4 or higher, the median, or scale position, of the statement would be 3.5. Some of the statements from Thurstone's scale for measuring attitudes toward the church are:

6.7 I believe in sincerity and goodness without any church ceremonies.

0.2 I believe the church is the greatest institution in America today.

When the test is administered the subject is asked to check all the statements with which he agrees. For each subject, then, a scale position is computed as the average of the scale values of all the items checked.

The Likert Scale. The Likert Scale (22:149-171) as with Thurstone, first involves the collection of statements concerning a particular issue. These statements are presented in trial form to a group of subjects asked to respond to them exactly as they might respond to a completed scale. Thus, in assessing attitudes toward the Negro, a sample item, such as the one presented is used: "If the same preparation is required, the Negro teacher should receive the same salary as the white." The respondent is asked to circle the category which represents his feelings: Strongly Agree, Agree, Uncertain, Disagree, Strongly Disagree. Each item is tested for internal consistency - that is, are all statements concerned with the same issue. Following this, responses to favorably worded statements are scored 5 for strongly agree, 4 for simple agreement, 3 for uncertain, 2 for simple disagreement, and 1 for strong disagreement.

Guttman Scale Design. The scale design used was that developed by L. A. Guttman involving the principle of scalogram analysis (35:247-280). The book by Edwards (22:149-171) has the clearest description of this method. He has written that if a set of statements with a common content is to constitute a Guttman scale, a person with a higher rank or score than another on the same set of statements must also rank just as high or higher on every statement in the set as the latter person. This means that a person with a more favourable attitude scale than another must also be just as favourable or more so in his response to every statement in the set than the other person. If responses to a set of attitude statements meet this requirement, the set is said to make an unidimensional scale.

Therefore, it can be assumed that statements about the psychological object fall along a single continuum from least to most favourable. Each individual is compared with each statement. If he agrees with the statement, he is assigned a weight of 1 and if he disagrees he is assigned a weight of 0. For each person we sum the weight of his responses to the statements, and if the statements fall along a single dimension, then a perfect rank order scale would result.

However, it is not known in advance that a given set of attitude statements necessarily fall along a single continuum from least to most favourable. It becomes the purpose of the scalogram analysis to determine whether if we start with this as a hypothesis, the responses of the subjects to the statements are in accord with the hypotheses of the single dimension.

The degree to which the responses of the subjects are in accordance with the expected responses of the scale model is what Guttman (35:247-280), calls the coefficient of reproducibility (C.R.). This factor is found by subtracting the proportion of errors to items from unity, i.e., 10 errors from a total of 80 responses = $10/80 = .12 = 1.00 - .12 = .88$.

The minimal marginal coefficient of reproducibility which is possible to obtain with a given set of statements having known frequencies in each of the categories of responses, can be determined by the following procedure:

1. Find the proportion of responses in the model category for each statement.
2. Sum the values and divide by the number of statements.
3. The resulting value is the minimal marginal reproducibility (M.M.R.) for the set of statements.

The value of the minimal marginal reproducibility is that it can be compared with the coefficient of reproducibility after computing for error, to note the improvement in predictions gained from a knowledge of the total scores. If a scale has a large difference between the two, with a low M.M.R. of possibly .68 and a high C.R. of .90, then this would constitute a good scale. If the C.R. is less than .85 the set of statements are said to constitute a quasi-scale (36:451-465). In the case of quasi-scales the scores of subjects are believed to be

determined by one major variable and a number of minor variables. This indicates that the statements in part would have to be re-analyzed and reworded in order to deal with the main variable before the scale would be considered reliable.

III. SOCIOMETRIC MEASUREMENT

Personality Theory.

Two basic theories in sociology regarding the development of a child's personality were established by men of relatively the same era, Cooley (37:200) and Mead (38). The former was called the "looking glass" theory.

The way we imagine ourselves to appear to another person is an essential element in our conception of ourselves. Thus I am not what I think I am and I am not what you think I am. I am what I think you think I am.

We exhibit a different self in different social groups, we are a different self in different groups, and we depend upon the presence of others for our conception of ourselves. Mead (38:133) agreed with Cooley's concept that although the self may have its focus in the organism, it is a social product and a social phenomenon. Everything that one does in response to another person is a response to the behavior of that person. The more we interact with others, the more we learn to anticipate what their response will be to our actions. We watch for signs of pleasure or displeasure in the other person, and learn to interpret them correctly. These signs take the form of gestures and facial expressions, and after awhile these gestures and expressions indicate to us what we are expected to do in any given situation. As a result it is soon revealed to children

what others think of them. This is reflected in their own attitude toward themselves and the corresponding growth of their personalities.

Sherif and Sherif (39:513-573) point out that the mere presence of another person watching our actions or performing the same task beside us or agreeing to a request, does affect our own experience and behavior. The differential effects of others on our behavior may be manifested in increased self-consciousness or greater absorption with the task; by greater clumsiness or more skill, by a greater inclination to be agreeable, or increased obstinacy depending upon the content of the task, where we are and the people involved. They found that people come together because they face some common problem or have some motives than can be handled in concert with others. Whatever the common problem or motive, if it is conducive to continuing interaction among the individuals, the relationships among them assume a pattern which may be more or less stable. Over a period of time, the members defined ways of doing things, establish common conceptions about ways of treating each other and outsiders, as well as clarifying what is acceptable in terms of possessions and personal achievement.

Group Adjustment and Conformity.

Newcomb (40:393-404), a strong supporter of the theory of social systems, suggested that in order for people to form comfortable associations, it is important to adjust to one's perceptions and attitudes making them as similar as possible. This enables the participants to more accurately anticipate one another's ways of interpreting and reacting to new issues when they arise.

Davitz (41:173-176) of Yale University found that while working with ten year olds at a summer camp, those children who "chummed" around

together and finally became friends were those who perceived one another as being alike. They were more alike in sharing camp experiences than those who were not friends. He argues that people need to feel similar to others they like and value. Children, to be mutual friends adjust in one of two ways; they modify their views so they will be more similar, or they can be completely insensitive to the differences that exist and think others think as they do.

Schachter (42:190-207) found when groups have a person in their midst with ideas that are radically different, they at first try their utmost to change his ideas. If the person does not change he is excluded from the offices and decisions of the group; he in effect is ignored. At the end of his study Schachter asked all the group members to indicate who was the most and least valuable person. The deviators from the group norm were at the bottom of the list.

Walker and Heyns (43:1-98), in their studies, have found that the degree of conformity depends on the attractiveness of membership in a particular group. A person will conform to norms in those groups in which he wants to be accepted, and he will become a nonconformist thereby showing his rebellion in groups he does not find satisfying. Since most people want to be accepted in at least some groups, it follows that nearly everyone, regardless of his personality, can be made to conform when the situation is right. Not only are group members influenced by talkative members but also by the passive and silent members.

Whyte (44:169) makes some general observations about leadership in terms of the Norton Gang which may be applicable in any group. He states that the leader as a whole is a man who best lives up to the standard of behavior that the group values. If the group is interested in boxing and bowling the leader must be a competent boxer and bowler. At the same time he naturally promotes the activities in which he excels, and this high social standing helps him as expected to excel in them. He lives up to his demands of mutual aid better than the rest of the group. When he gives his word, he keeps it, and when he makes decisions, most of the time they are right decisions.

Achievement and Social Acceptability

Buswell (45:37-55), in her search for a relationship between achievement and social acceptability, used 176 girls and 145 boys from Grade V. She compared results on the Stanford Binet, and the Iowa Every Pupil Test of Basic Skills on achievement, with the results from the Ohio Social Acceptance Scale and Sociometric Scale. She found that those who were succeeding in their school work were also succeeding in their social relationships. She suggests this supports a possible hypothesis that achievement is a basic factor in acceptability. It precedes rather than follows, that acceptability is suggested to take place between the time the child is in kindergarten and the time he is in first grade and is beginning to experience some of the activities in the school where success is made. In kindergarten, before academic success is evident, the future achiever is not chosen in social

relationships any more than the non achiever. She concludes by indicating that teachers need to work more on achievement than acceptability.

Baraheni (46:63-67) checked into the attitudinal concomitants of success and failure at school. He checked 276 children ages 9 to 12 years. He gave the students intelligence and attainment tests, tests on attitudinal factors, self picture measurement tests, and tests of socio-economic status and interests. Positive and significant correlations between success in arithmetic and attitudinal variables such as satisfaction of reciprocated psychological need for appreciation, popularity within the classroom, intimacy of friendship ($+0.214$, $+0.246$, $+0.217$ respectively), scores on attitude to the family showed a negative and significant correlation with successes in arithmetic (-0.194).

Success in English showed a similar trend, but only certain relationships reached the level of statistical significance. According to Baraheni this study underlines the importance of attitudes and social interaction as they affect scholastic success. He feels that none of the formal aspects such as pressure upon pupils, better teaching methods, and school equipment, thought to result in improvement, were really closely related to success in school work. This finding supports the formulations of socially-orientated psychologists like Fleming (1958) and Jersild (1953) as to the primary importance of attitudes, social atmosphere, self-picture, and satisfaction of certain psychological needs, in the wholesome psychological functioning of human beings.

Adult Influence in Social Acceptability

Teacher Praise. Flanders and Hauumaki (47:65-68), at the University of Minnesota, conducted an experiment to see if teacher-pupil contacts involving praise will affect the sociometric choices received later on. They hypothesized that contacts involving praise given by a prestige figure will increase the choice value of the student. The group situation involved an attractive activity, and the praise given was centered on the individual's behavior and the major activity of the group. The criteria question used to elicit the sociometric choice was related to the major activity of the group.

The students were led to believe that they would appear on a quiz kid program. They were divided into two divisions in 17 groups. The teacher praised certain individuals and excluded some. In the second division the teacher and leaders referred to the 16 remaining groups in terms of the group only. As an example in the first division comments like the following were given: "That's a very good suggestion Mary", while in the second division the comments were all like "This group is going to make a fine team." When the groups were first brought together they were asked to name their friends. There were only 6 friendship pairs.

Of the total (928) acquaintanceships reported, 48.6 percent were for subjects given individual praise and 51.4 percent involved subjects ignored for teacher praise. The use of Chi square = .012 indicates that the difference is not really significant. When subjects were asked to choose good program participants after the teacher course, the results were:

	Individual Treatment		Group Treatment	
	N	%	N	%
To Odd Seats	496	59.3	384	48.6
To Even Seats	341	40.7	407	51.4
Total	837	100	790	100

Since all those students sitting in odd seats were those who received teacher praise, it was concluded that teacher-pupil interaction involving praise that is supportive and constructive, is likely to increase the choice value of a student indicating greater acceptance by his peers.

Teacher Admonishment. Davis (48:305-313) tested 13 year olds at an outdoor laboratory school to see whether the camping experience would increase friendship choices. Unlimited choice of the group was given with the exception that students were not allowed to cross sex lines. During the camp period the teacher who was the director admonished the students to make new friends and get to know each other better.

A one-tailed test was used at the .05 level of significance, and it was found that children were chosen more times after camp than before. Boys received more choices after camp than before and girls received more choices after camp than before. Pupils indicated on a self evaluation form that they had made more friends and their choice was also more diffused following the camp.

Spearman's rank order correlation of .78 for boys, .64 for girls, and .80 for the class as a unit, all significant beyond the .01 level, indicate a high similarity in the results of the two administrations.

Thus while some children lost, others gained. Even though the basic friendship pattern of the class had not been altered, it did afford an opportunity for widening friendships. The isolates did not change much in their constellations.

Recent Studies Using Sociometric Questionnaires

Cragg (49) in evaluating the School Camp at Long Beach California attempted to measure, (1) the effect of one week in camp on certain social, intellectual, health, and emotional aspects of child development as compared to a control group, and (2) to identify the educational achievements of the camp program with particular reference to experiences which were unique and important to the total development.

She employed a variety of measuring instruments which included: (1) an unstandardized nature and vocabulary test devised by herself, (2) Edna A. Warner's short form socialization scale on which camp counsellors rated pupils on social maturity, (3) essays to determine language and arts growth, (4) sociograms, (5) parent questionnaires, (6) descriptive reports from teachers and observers, and (7) interviews with campers. The nature and vocabulary tests were administered to an experimental and control group of sixth-grade students, composed of approximately twenty-six boys and twenty-five girls each, during the week before and the week after camp. Sociograms were taken at the same time and again four weeks later, but only with the camping group. The remaining measuring devices were used after camp experiences on 157 sixth-grade campers, their parents and teachers.

Using the critical ratio statistics to compare the experimental and control groups where applicable and other measures elsewhere, Cragg obtained the following results:

1. Marked progress in nature study.
2. No significant gains in the language arts and vocabulary.
3. Improved health habits and manners.
4. Little or no change in social maturity (encompassing self-reliance, acceptance of responsibility, initiative, co-operation, mixing ability, and efficiency in performance of duty).
5. Teachers emphasized improved conditions and respect for others.
6. Parents emphasized improved social relationships. The children evidenced enthusiasm and enjoyment. They enjoyed working together in groups. They altered loyalties as a result of the week at camp. Although loyalties did not persist, they persisted more so than pre-camp friendships.

In conclusion Cragg stated the need for further controlled studies to evaluate emotional and social development as a result of school camping.

In three different summer experiments directed by M. Sherif, (Sherif and Sherif, 1953; Sherif, White and Harvey, 1955; Sherif, et al., 1961) (39:545-570) 12 year old boys were brought to a summer camp which had been arranged especially for research purposes. As far as the boys were concerned, they were just attending a summer camp. However, the personnel were research people and were thus able to scrutinize carefully all actions of the boys. They found that group membership depends upon a number of characteristics:

1. Memberships imply unmistakable mutual ties in the capacity of belonging to a particular unit.
2. It implies sharing the stands taken by the group, and being within the bonds drawn for attitude and behavior in matters that count for the group.
3. It implies both rejecting positions and people rejected by the group.

Over a period of time a group of crystallized individuals develop preferred ways of doing things, and common conceptions of what is desired in the way of possessions or personal achievement. They share secrets in common, develop favorite catch words, and come to think of themselves as "insiders."

The common problem in the study was to have a good time at camp. Boys were put into units with the fewest of their friendship choices on the sociometric test. In each group only 35 percent of the friendship choices were for boys in the same unit while the remaining 65 percent were for those outside. In addition units were matched in terms of size, strength, ability in games, intelligence, and personality test results. All their activities were planned to have problems whose solution lay in working together. For a time researchers could find no configurations in the groups with the exception that certain boys who had advanced skills in specialized areas took over. However, after a short period of time those in the leadership roles were consolidated and some at the bottom were found to be stabilized for a time. Usually in group growth the leader constellation is stabilized first, indicating that for the time being one individual has begun to co-ordinate and initiate plans in a variety

of activities. Lower status positions usually stabilize as it becomes evident to other members that one or two persons are not doing their bit, or are usually in the way or acting foolish just when there is crucial business to be done. They may also be less interested or less skilled than others. In the middle area more jockeying for position usually occurs. Many factors can change the upward or downward movement of members; an outside threat or emergency, striking changes in location and facilities, changed activities of interest to members. All of these and other conditions could hasten or retard the emergence of a stable pattern or change it, once it has taken shape. Each group develops ways of doing things on its own, such as in the preparation of meals, or the making of lanyards; each has its own methods of control. In the Bull Dog group a member who cut up or failed to pitch in when needed was told by the leader to remove a number of rocks from the swimming hole. When the groups had taken shape 95 percent of the Red Devils and 87.7 percent of the Bull Dogs selected fellow members as their best friends. This increase from 35 percent shows the great significance for the individual's personal preferences of interaction with others in a group organization.

CHOICES OF FRIENDS IN EXPERIMENTAL FORMATION OF GROUPS

		Persons in their own unit	Persons in other unit
At time of Division into Two Units	Future Red Devils	55.1	64.9
	Future Bull Dogs	35.0	65.0
After Group Formation	Red Devils	95.0	5.0
	Bull Dogs	87.7	12.3

In a second experiment (39) on group formation carried out in Upper New York state in 1953 by Sherif, White, and Harvey (1955), it was found that an individual's motives and attitudes are often reflected in his perceptions of a situation, if the situation is instructed. A large target board was covered with plain blue denim so that when the ball was thrown it rebounded quickly leaving no trace of where it hit. However, under the cloth the board was wired so that the researchers behind it could determine exactly where the ball had hit. A light signal showed the score made in distance from the target's center. It was found that judgment of an individual's performance by his fellow members was directly related to his status in the group. If he had a high status his performance was overrated, if he had a low status his performance was underrated. In the group where position was less stabilized, judgments tended to be less dependent upon the group's judgment.

The leader of the Bull Dog group was highly skilled at bringing all members even those in the lowest positions, into group activities in some capacity. He frequently delegated the immediate conduct of an activity to one of his lieutenants and he encouraged and helped others. The leader of the Red Devil group on the other hand was exclusive in his associations. He was admired by all the members for his stature, skills, and daring; but his exclusive attachment to his lieutenants was at times resented by other members. Typically, the leader would tell one of his henchmen what was going to happen or give an order to a low status member. If things went wrong, he was inclined to blame others. With his prestige at stake he protected himself by

exciting others to find a scapegoat. This bickering in the lower ranks probably was the reason the group was less cohesive.

Kranzer (50), in evaluating the "Effects of School Camping on Selected Aspects of Pupil Behavior" found that the following measuring instruments produced these results:

1. Woods Behavior Preference Record indicated that camping may have little effect on childrens' stated preferences for various types of democratic behavior, but tended to improve critical thinking, especially for low intelligence quotient groups. The results of the Haggarty-Olson-Wickman Behavior Rating schedules revealed that school camp tended to improve pupil behavior in general, and social traits in particular.
2. The Rating Scale of the Teachers' Personal Effectiveness indicated that, because the teachers were able to get to know students on a more intimate basis, their personal effectiveness improved.
3. Parents were unanimous in their vote of approval for school camp.
4. The sociometric scales found the following information pertaining to isolates. (An isolate is a subject receiving no choice.) The Athens experimental group gained three isolates while the control group gained two, with the greatest single increase in choices occurring immediately after the week at camp among the experimental high intelligence quotient boys. The Williamsport total experimental group gained two isolates, while the control group remained unchanged, with the low intelligence quotient experimental boys making the greatest gain.

In conclusion, Kranzer states that changes are not significant at the 10 percent level but boys appeared to profit more than girls. There was no stated effect on democratic behavior, even though total group social gains accrued. Teacher effectiveness improved, and school camping seemed to stimulate types of classroom activities which are consistent with good instruction.

Hollenbeck (32) in her study of Oregon's first pilot project in school camping found that:

1. Students who were popular as cabin mates before camp were those chosen most frequently after camp.
2. There was some change of rank after camp. One girl dropped from above the median place to last place after camp. One boy rose from the lowest rank to the median.
3. A nearly exclusive pre-camp group of four girls emerged with the class after camp.

This study revealed that in the camping experience often students, who in the classroom were superficially accepted, became isolates in the camp setting. This situation may indicate that the association in the camp had revealed actions and attitudes not noticeable in school. Similarly the opposite situation occurs with one who is an isolate in school, climbing upward at camp.

Stack (51), in her Ph.D. dissertation tried to find what kind of attitudes toward selected concepts students had following a period of school camping. She tested 44 boys and 44 girls from the lower middle class social-economic levels. She administered an Inventory of Key Concepts which included attitudes toward classmates, school, teacher, school camping, self and friends, and a sociometric questionnaire. Twenty-four were given the Incomplete Sentence Test designed to reveal feelings toward or away from certain attitudes. Observation of school and home environment of students, together with utilization of certain school records of ability, achievement, and socio-economic data was made. Conferences were held with classroom teachers and student teachers to gain information for anecdotal records on behavior. The results recorded the following points:

1. Students had a high regard for classmates prior and subsequent to camping.
2. Ninety percent of the campers made new sociometric choices, with a group mean of 1.16 new choices being made.
3. Students in the sixth grade made more choices than the fifth grade.
4. Sixth grade students made more sociometric choices of the opposite sex, following the camping period than did those of the fifth grade.
5. A beginning acceptance of classmates of lower sociometric acceptability was registered by both fifth and sixth grade students.
6. Students did not regard school in a highly favourable manner either before or after camp.
7. Girls tended to regard school more positively than boys.
8. A consistent positive change of attitude toward home room teacher subsequent to camp.
9. A more overall change in students toward school camping subsequent to the experience.
10. Boys changed more favourably than girls toward teacher after camp.
11. Boys reacted more positively to school camping than did girls, who showed a slight loss of esteem on the basis of post-camp reaction.
12. Students considered getting better acquainted as one of the most important features of camp.
13. Overall positive gain in relation to attitude toward friends; with boys forming more friendships valued more highly, following camp than girls.
14. Before camp attitudes rated most favourably were; classmates, self, school. After camp they were; friends, self, classmates.

Interpretation of Sociometric Choices

Jennings (52:71-98) in her studies using sociometric questionnaires has found that children's choices are graduated. They select others who are, at their stage of development, more skillful in meeting the special situations and problems confronting them, or who have greater confidence and better contact with specific elements in situations which are troubling them, or who by temperament are able to help them see life more zestfully. Children use choices above all else in order to build themselves, to preserve themselves as persons. The choice of a friend or a specific project may be different than the choice made for a recreational get-together. If the goal is the study of mathematics, the subject will likely choose a student who is good in mathematics to work with; however, he may not choose this person with whom to attend a movie. The sociogroup is the group name tied to a goal, when the psychgroup is that group which meets the inner needs of the personality.

Northway and Lindsay (53:24-64), in the field of child study, University of Toronto, suggest that sociometric preferences are universal. In every group studied, these preferences exist but may not always be reciprocal.

To an individual some people have more value than others do. It is true that a person is freer, more at ease, usually more expressive, and more likely to "be himself", when he is with people he prefers.

In all groups scores for individuals range from high to low; no one is preferred by everyone, but nearly everyone is preferred by

someone. A few individuals are not preferred by anyone. Even in a good group one to two percent will not receive choices. Putting the isolated child with those he has expressed a desire to be with may produce amazing results.

The development of a sociometric questionnaire should follow the basic pattern outlined:

1. Use three criteria, and three choices.
2. Use criteria which are realistic and cover a range of situations children actually meet.
3. The criteria and choices should be the same throughout only modifying the wording to be appropriate at each age level.
4. The criteria used in one sample was:
 - (a) Who would you like to sit by?
 - (b) Who would you like to work with?
 - (c) Who would you like to play with?

Number of Choices. Evans (54:50-58), in his analysis of sociometric techniques, indicates that in making up the tests one should provide an opportunity for students to write down as many choices as possible. As stated, a few choices distort the picture because others may be considered, but not in the first choices. Some are happy with a few friends, others include a large number. It is also stressed that some children do not like to express distaste for another; therefore it is often hard to get at, but it is important to find out those actively disliked from those about whom feeling is just neutral. If it is felt that this will generate antagonism one should not use this approach.

Gronlund (55:39-56) in his extensive work on sociometry has suggested that three criteria and five choices constitute a good testing instrument. He advocates the use of generalized statements about the areas in which children are interested. As an example it is best to ask a child whom he prefers "to play with", rather than to ask him whom he prefers to play "baseball with", unless, of course, one is dealing directly with a baseball problem.

He also (56:97-106) states that although sociometric results can be expected to vary from one group to another, certain phenomena occur with such persistence that they may be considered typical sociometric patterns. One is the common finding of a positively skewed distribution of sociometric choices. The tendency for a larger percentage of students to appear in the low sociometric status categories has been shown to occur at all age levels, over different sociometric criteria, among both sexes, and with varying numbers of sociometric choices. The consistency with which this condition has shown itself has led to the formulation of Moreno's sociodynamic law.

Another common phenomenon appearing in sociometric results is sex cleavages. Boys and girls show preference for their own sex. This decreases at the high school and college levels. The lowest percentage of cross sex choice occurs in the play category, and varies from one school to the other.

Mutual choices that occur in sociometric choosing, are an indication of the socialization level of the group. These choices increase during Junior and Senior High School. There is also a general tendency for girls to have more mutual choices than boys. During

adolescence cross mutuals increase between the sexes. The specific number of mutual choices, of course, depends upon the test given and the nature of the group being tested.

Analysis of Data. Whitaker (57:152-160) proposed a method for analyzing sociometric data by presenting a set of criteria to serve as a constant frame of reference. She suggests these criteria for analysis:

1. The fewer the isolates in the group the better.
2. The higher the total number of reciprocated choices within the limits of the number of choices allowed the better.
3. As group matures, number of over chosen decreases and the choices should be shared by all.
4. The acceptance curve takes the shape of the normal curve.
5. Structural analysis of the sociogram reveals a highly differentiated, all pervading network.

Isolate. Reger (58:154-157) states that a child who is selected as an isolate on peer sociometric ratings will tend to be emotionally disturbed. His study was done on 25 emotionally perturbed, educationally and mentally retarded children between the ages of 10 to 16, with I.Q. ranging from 70 to 105 points. He attempted to help an isolate by giving him artificial status with the group. This was the highly coveted job of messenger. This strategy served only to further decrease the boy's popularity with his peers. They knew he did not deserve the honor and he felt in himself that he did not deserve it and as a result felt degraded.

Stability of Choices. Polansky, Lippit and Redl (59:39-62), working with emotionally disturbed children found little correspondence between whom a child states he would like to be with and whom he actually associated with. They concluded that neither popularity nor status are unitary factors and that only with clearly described limits may popularity be taken as the index of "group status".

Gronlund (60:154-157) also did work on the value of weighting choices during scoring. The standard procedure is to; (1) give each choice a value of one regardless of the level, (2) give each choice a value; first is given a value equal to the total number of choices used and each succeeding choice declines by one.

A test was given to 118 boys and 98 girls from grades IV, V, and VI. They were tested in January and again 4 months later. The results indicated no difference in relative stability of social status based on unweighted or weighted sociometric choices over a four month period. Rank difference correlation coefficients between weighted and unweighted ranged from .90 to .99 ($M=.95$) indicating that the relative social status is the same.

The stability of the various choice levels on the sociometric test indicated that the 1st choice was the most stable with a steady decrease to 5th choice. As indicated there was the following response; 72 percent first choice, 59 percent for second, 52 percent for third, 45 percent for fourth, and 35 percent for fifth. Several weighting systems produced no increase above that of unweighted choices. Stability of five unweighted choices was constantly higher than the stability of

three unweighted choices. High and low social status scores using five unweighted choices were very stable over a four month period. Using Bonfenbrenner's fixed frame of reference it was found that of those pupils in the high and low social status categories on the first test, 80 percent remained in the same category or one choice removed from it, one month later. The stability of cross sexes was usually low.

Summary.

The areas of research in the literature were confined to the philosophy of outdoor education and school camping, attitude scale development, and the application of sociometric questionnaires.

Outdoor Education. To define the purpose of outdoor education and benefit from experience of others who had conducted outdoor schools, material was reviewed in this area. The history of the "teaching by experience method" was advocated by such early educators as Rousseau (2) and Pestalozzi (3:173), Grundtvig (3), the Danish poet, and such moderns as T. S. Breed and John Dewey (4:284-303), who all proposed that the best learning situation exists when children have first hand experiences where all the senses are used.

The American Association for Health, Physical Education and Recreation, has stated that, "what best can be learned inside the classroom should be learned there, and what can best be learned out-of-doors through direct experiences dealing with native materials should be there learned.

Attitudes toward nature and conservation are more important today than ever before since many in our culture have lost a direct

contact with the land, and fail to realize our dependence upon it for our ultimate existence. In addition, with advent of more leisure, a great number of city dwellers are trekking to the country for relaxation and enjoyment. Hoffmaster (10:516-521), director of the Department of Conservation for Michigan, writes that conservation measures will not result from external force, but only from an earnest desire on the part of individuals to exert these controls themselves.

Total fitness is another objective of outdoor education. The school camp provides an unlimited laboratory for living out health practices under the guidance of mature adults.

Gilliland (12:516-521) in discussing the program of school camps, stipulates there must be more than just the outdoor setting; that change on the part of campers comes from the leadership of dedicated and enthusiastic people. Another important factor is the impact of living in a democratic group. This experience exerts pressures to make decisions and carry them out. The child learns to conform for the benefit of all the members.

Attitude Measurement. In order to develop scales for the measurement of children's attitudes, information was studied pertaining to their physical, emotional, social, and mental development. The literature provided little information on attitude scales developed for this age group. To understand what material the children were taking in school, the course of studies, and tests for the grade were perused.

Lambert and Lambert (18:50-52) have defined attitude components as thoughts, beliefs, feelings (or emotions), and tendencies to react.

When these components are interrelated attitudes are formed. These feelings and reactions are learned through association and need satisfaction. We learn to fear and avoid people or events that are unpleasant, and approach those that are pleasurable happenings.

Some authors argue that an attitude is only genuine if one is willing to act upon it. Others, one of whom is Edwards (22:6), states that attitudes are genuine and may be held by people even if they do not act on them in every situation. Components of attitude scales consist of the "psychological object" which may be any focus of concentration, from a tree to a concept; and scale items which are composed to elicit different levels of intensity reaction from respondents. A brief analysis of attitude scales resulted in the Guttman Scale model being chosen for the project. Two factors determine the reliability, the Minimal Marginal Reproducibility (M.M.R.) and the Coefficient of Reproducibility (C.R.). The former, indicates the extent to which the items differentiate between students in relation to the scale model, and the latter, denotes the degree items draw a consistent response from each student. If the scale has a large difference between the two, with a low M.M.R. of possibly .68 and a high C.R. of .90, then this would constitute a good scale. Quasi scales are those which have a M.M.R. above .75 and a C.R. below .85.

Sociometric Measurement. Personality growth, and one's self image should be important concerns of education. The growth of the self image was said by two early sociologists, Cooley (37:200) and Mead (38:133), to be dependent upon the social milieu. We are what

we think others think we are; this we interpret from the facial gestures, actions, and behavior of those around us. If a child feels rejected by family and peer group, his self image would in turn be derogatory, if on the other hand he felt secure and valued by those around him his self image would be good.

For people to harmoniously work together in groups they must adjust their perceptions and attitudes; if a person does not conform to the will of the majority he is excluded from important position and his ideas ignored. Whyte (44:169) found that membership to a large degree is contingent upon embracing the values of a group, and leadership depends upon being able to perform well the skills or assignments expected of a leader. Other recent studies have shown that group growth depends to a large degree upon solving problems for the group's welfare, competition against outsiders, and a certain degree of isolation.

Hollenbeck (32) found that camping experiences provided an unique situation where students could get to know each other on more than a superficial way. Stack (51) observed that 90 percent of the campers made new sociometric choices, and that cross-sex choices increased.

The test instruments most widely used have three criteria and five choices. The stability of choices decreases from; 72 percent for first place, 59 percent for second, 52 percent for third, and 45 percent for fourth. Studies indicate that every group has isolates and neglectees, and stars. As a group matures the choices are shared by all, the mutual choices increase and the stars and neglectees are reduced.

The review of literature was broad, in order to encompass all aspects of the problem.

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CHAPTER III

THE CALGARY PROJECT

I. PRELIMINARY ORGANIZATION

Mr. Warren, Superintendent of Schools, introduced the proposed experiment to the Calgary Public School Board in November 1963. After further information was obtained, the Board gave approval for the school camp on an experimental basis with no assistance to be offered.

Mr. White immediately formed a planning committee consisting of Mr. Mayell; Mr. Reichenbach; Mr. Eric Coffin, Principal of Colonel Walker School; and Mrs. Ellen Gauley, teacher of the proposed class. The areas of concern to the committee were: finance, campsite, personnel, insurance, health, program evaluation, and staff preparation. These areas were studied carefully by the committee and then each member assumed responsibility for one or more areas.

Finances.

A meeting with the parents of the Inglewood Community Association resulted in a promised donation of \$350 in the spring term. An ice carnival was sponsored by the teachers and the School Association in February, which added several hundred dollars to the school fund, of which \$150 went to the camp project. The students had sold tickets to have their room's candidate appointed queen. It was significant that the class chosen for the experiment won the contest.

Mr. Tom Baines, Curator of the Calgary Zoo, donated twenty-five dollars. A popcorn sale held by the Grade Six class netted thirty-six dollars. Each participating student was asked to donate five dollars

which he or she earned alone, as a personal contribution to their week at the camp. Some pupils were unable to put in a fraction of the amount and some contributed in excess of the five dollars. The total amount raised for the project was \$701.15 and the expenses incurred are on the financial statement, Table I.

In the 1965 season the Calgary School Board, realizing the worth of the project gave \$500 to cover the major expenses. This enabled the camp administration to give a small honorarium to the counsellors and resource personnel to cover travel and expenses. The gift not only helped the project but signified that the Calgary School Board saw fit to support the new venture on the basis of the positive results of the 1964 camp.

The Campsite.

The Kiwanis Campsite, which is normally operated in the summer for underprivileged children from the Calgary area, is located about fifteen miles west of Calgary by the Trans-Canada Highway, and about three miles south on the Bragg Creek road. The camp is fully modern with up-to-date kitchen facilities, running water, and electricity. There are four units for campers, an arts and crafts building, kitchen and dining room, a recreation building, staff house, and infirmary cabin. The arts and crafts building was used as the classroom. In the immediate camp area is a well-developed campfire circle and chapel.

The resource material in this campsite is of excellent quality. On the northwest edge of the campsite is a slow moving creek containing a wide variety of aquatic life. Approximately one-half mile from camp is the Elbow River which offers possibilities for a good lesson on soil

TABLE I

OUTDOOR EDUCATION EXPERIMENT - JUNE 1964STATEMENT OF INCOME AND EXPENSES

<u>EXPENSES</u>		<u>INCOME</u>	
First Aid Equipment	\$ 4.64	Inglewood Community	\$350.00
Food and Sundries	137.66	Col. Walker School Fund	150.00
Dairy Supplies		Donation - Tom Baines	25.00
- milk and butter	48.10	Pupil Donations	150.00
Camp Kiwanis Rental	350.00	Popcorn Sale	36.15
Honoraria			
- Mrs. Heathcote	50.00		
- Mrs. White	20.00		
Travel Expenses			
- Counsellors	15.00		
TOTAL EXPENSES	<u>\$625.40</u>	TOTAL INCOME	<u>\$711.15</u>
Returned to Col. Walker School Fund		\$85.75	
Average Cost per Student	\$625.40 ÷ 34 = \$18.40		

OUTDOOR EDUCATION EXPERIMENT - JUNE 1965STATEMENT OF INCOME AND EXPENSES

<u>INCOME</u>	
Calgary School Board	\$500.00
Inglewood Community Association.	235.00
Pupil Donations (25 x \$5).	145.00
Balance from 1964 Experiment	74.75
TOTAL INCOME	<u>\$954.75</u>
<u>EXPENSES</u>	
Kiwanis Camp Rental.	\$350.00
Food - meat.	42.79
- dairy products.	52.33
- groceries	109.79
- bakery.	13.80
Maps (Government of Alberta)	8.50
Pupil and Staff Insurance (Bell and Co.)	11.00
Staff travelling expenses.	16.00
Staff Honoraria - kitchen staff.	100.00
- nurse.	20.00
- counsellors.	120.00
- resource persons	105.00
Telephone charges.	4.25
Returned to Colonel Walker School Fund	1.29
TOTAL EXPENSES	<u>\$954.75</u>
Cost per pupil = \$953.46 ÷ 30 = \$31.78	

erosion, land forms, and the force of water. Normally it flows rapidly along the edge of a high cut bank to the northwest of camp but on occasion after an extended period of rain, or during the spring run-off, it spreads out gouging up trees and soil to form additional channels through the flat land. A tributary of the river has become the home of a small number of beaver. In the evening after a short hike, campers can observe them swimming in the water, or working on their dams. Abundant birds and flowers are found along the waterway. The prime trees are spruce, trembling aspen, Balm of Gilead cottonwood, and some alder and birch.

The Sarcee Indian Reserve is situated to the southeast, separated from the campgrounds by the Robinson Ranch. In this unique location the Robinsons over the years have been able to befriend the native peoples, who in return for this friendship have given the family many beautiful gifts. These and other artifacts of pioneer days are on display in the home and prove an interesting contact with pioneer history. Miss Robinson's paintings, which include a great number of Alberta's famous Indian chiefs, also add to the attractiveness of the home as a museum. At present she is just completing the only known canvas painting of the Sun Dance or Initiation Dance of the Alberta Indians. A museum is therefore available close to the camp.

Two miles to the northwest of the camp is the Barnes' dairy farm. These folk are always happy to describe the aspects of farming which city children may know nothing about.

FIG. I

CAMP SITE – COOKHOUSE AND LODGE



FIG. II

FIRE LIGHTING INSTRUCTION

FIG. III

SHELTER CONSTRUCTION



Personnel.

The program drew from some eighteen persons in 1964 and approximately the same number in 1965. The four counsellors were not responsible for the academic aspects of the camp but were more concerned with the social-emotional, physical, and spiritual welfare of each child.

Key Resource Persons, included the following (most participated in both camps):

1. Miss Mary Barkley (1964-1965) who had considerable knowledge about flowers, shrubs, and trees. She teaches in Calgary.
2. Mr. Harold Tanner (1965), retired school principal and one of Alberta's authorities on plant, animal, and bird life. He and his wife stayed on the campsite, making it possible to be more flexible with the natural science aspect of the program.
3. Mr. Norman Winnick (1964), staff member of the Calgary Zoo, contributed much with his professional knowledge of animals and birds. He was not present in 1965 because of the taking of a new position in the United States.
4. Mr. Ken Zurosky (1964-1965) from the Calgary Aquarium, shared his expert knowledge on fish and creek life.
5. Mr. Wallace Hanson (1964-1965) from the Forest Conservation Board, lectured on topography and explained how the Elbow River had eroded the landscape.
6. Mr. L. Ross, geologist (1965), used his display of rocks including those from the area, to interest the students in this field.

7. Mr. R.O. Barnes (1964-1965), owner of a dairy farm two miles from camp.
8. Mrs. J. Robinson and Miss Robinson (1964-1965), camp neighbors, with an extensive knowledge of pioneer life in the area.
9. Mrs. Ellen Gauley (1964-1965), classroom teacher, who provided valuable instruction and guidance in preparing the pupils' workbooks and collections. Following meals and at evening programs, she led many lively sing songs - an activity in which she has special interest and talent. Mrs. Gauley also conducted much of the study on insects.
10. Mr. Ranald White, Assistant Principal (1964-1965), who co-ordinated the experiment, and presented sessions on meteorology.
11. Mr. Garry Gibson (1964-1965), of Camrose Lutheran College, prepared an evaluation of the camp, and also gave instruction in camp craft, map-reading, the use of the compass, and assistance at evening programs.
12. Mr. Peter Reichenbach (1964), of University of Alberta Calgary, presented sessions on outdoor craft, such as use of knives, axes, and the lighting of fires.
13. Chief Starlight (1964-1965), from the Sarcee Indian Reserve, and his braves, performed several of the tribes' dances in costume.
14. Mr. Ken Hodgert (1964-1965), Red Cross Water Safety, brought a film to camp one evening and gave a short talk to the group on various aspects of water safety.

15. Rev. Bob Wallace (1964-1965), from Parkdale United Church in Calgary, conducted a non-denominational service. His subject was the pioneers of Alberta.
16. Mr. John Mayell (1964-1965), was responsible for the initial explanation to the new campers of the camp lay-out, facilities and expectations.
17. Mrs. Heathcote (1965-1965), the chief cook, with the aid of the assistant cook, Mrs. White (1964), and Mrs. Severne (1965), and helpers looked after the food needs.
18. Mrs. G. Jepson, wife of the new Principal of Colonel Walker School, was nurse and cook's assistant in 1965.
19. A maintenance man for the camp was provided by the Kiwanians.
20. The counselling staff both in 1964 and 1965 were of high caliber. Each group, however, had different training and knowledge of the camping field and the techniques of counselling. In the first camp the counsellors all had just completed their degrees in Physical Education. Miss Jan James and Mr. John Barbush, had several years of teaching experience plus training in the New South Wales School Camping program. Mr. Tom Brunt had a background of Y.M.C.A. and church camping. Miss Ilma Feldmeyer, had limited experience in camping, but her knowledge of people made her an invaluable counsellor to the older girls.

In 1965 camp, the counselling staff had only one member with previous experience in school camping. Mr. Morley Lee, a Physical Education teacher, had worked with Jack McKenzie on the Regina

Project. The others, counsellors Miss Myrna Empy, recent graduate in Physical Education and teacher training from the University of Alberta Edmonton, Miss Darlene Overbo, and Mr. Terry Storch, first year graduates from Camrose Lutheran College all had some experience either in church camping or with youth groups.

The counsellors gave unstintingly of their time, effort and ideas to make outdoor camping in Alberta a success. Their duties were extensive. In the role of foster parents they guided their groups through personal hygiene, cabin cleanliness, meal-time etiquette, rousing songs and spontaneous cheers. As participants in the small group dynamics of the camp they tried to develop group pride, through planning of activities and group participation. They performed as interested observers and assistants on field trips, and organized evening buffer programs when the campfires were rained out.

Insurance.

The School Board's Public Liability Policy provided coverage for the project. In addition students were either covered by individual policies by a local insurance firm or by a family policy. Parents also filled out a release of liability form for the School Board (Appendix A).

Health.

A health form and a camp supply list similar to ones used by the Outdoor Education School in Oklahoma were stencilled and given to parents for completion. These forms were studied carefully by staff members concerned and made available through the week for reference (Appendices B and C).

In 1964 it was impossible to locate a nurse for the camp period. Easy accessibility to Calgary by road or telephone plus having a number of first-aid personnel on staff diminished the seriousness of this aspect. Mrs. Gauley, the home room teacher, lived in the hospital and was available to treat minor cuts and bruises. In 1965 Mrs. Jepson, a qualified nurse, took over this responsibility.

Cleanliness was stressed in all aspects of camp life. Showers were required each day, and a thorough wash before meals was taken.

Pupils were directed to bring changes of clothing to offset lack of laundry facilities. Under the counsellors' supervision students were able to wash clothes in the washing machine.

When rain and wet weather prevailed, all students were checked closely to ensure that they had changed, and that wet togs were drying properly.

Publicity.

Coverage was given by the Calgary Herald and Channel Two television. The paper regularly reported progress through the spring months and gave a full write-up of the camp in operation on the city page. Mr. Ranald White and the experimenter appeared on Channel Four in an educational conversation on Henry Viney's Sports Roundup.

In 1964, Channel Two television spent a morning at the camp and gave the story in two ten-minute newscasts later that day and evening. In 1965 this aspect was deleted because of rain.

The May 1965 A.T.A. magazine carried a six page article under the title, "Four Walls Do Not A Schoolroom Make", concerning what had been attempted in the project.

Photographs were taken by pupils and staff members. These were pooled following camp and the best selected for a collection for future advertisement.

Program.

The camp program was patterned after the school of natural science in Toronto. Materials were also obtained from Illinois, Oklahoma, and Australia, to aid in the planning. Plans were made and changed frequently to accommodate resource people from the city who could leave their work only at certain convenient times.

Camp time was set two hours behind that of the city. This was done to: (a) give darkness for evening campfires, (b) make it easier for resource persons to come to camp, and (c) avoid early morning dew and dampness for outdoor activities. A sample program used for both 1964 and 1965 camps is included (Appendix D).

Evaluation.

The camping project was chosen as the subject for study by the experimenter, who evaluated two aspects of the experience; attitude change, and social growth.

Staff Preparation.

Staff meetings were held on the Sunday preceeding the week of camp. The day was spent covering the campsite, and adjacent resource areas. General procedures, forms, and schedules, were discussed and explained. The counsellors and staff spent the rest of their time arranging the cabins, and doing extra preparation for the week ahead.

II. CAMP OPERATIONS

Objectives.

The formal objectives of the camp program were:

1. To provide outdoor experiences in science that would furnish motivation for further study of science.
2. To help students grow in the appreciation of: (a) the beauties of nature, (b) the importance of conservation as it applies to all living things, and (c) the opportunities afforded by nature for recreation.
3. To give students experiences in living together for five days, so that they might gain more experience in co-operation, responsibility, thoughtfulness of others, group planning, and ability to carry out activities in realistic situations.

The total staff attempted to keep these goals before them in all their activities.

Social Setting.

Students on arrival at camp were given a brief account of its history and then conducted on a tour of the area by Mr. John Mayell, former Director of Camp Kiwanis. The children were introduced to their counsellors and then went to get settled in their cabins. The boys' cabins were under one roof, standing back to back. Their area was slightly away from the general camp center giving a little more isolation than with the girls' cabins. The girls' cabins were completely separated and were more accessible to the main buildings. During the week the cabin groups did many things in their separate units to foster unity among the members. However, since there was a direct de-emphasis

on competition between groups, communication was still maintained between outgroup members. In addition the students were often in activities where all the class members took part. Some competition was programmed into cabin inspection and the inter group skits and sing songs. Every morning the director and nurse conducted a cabin inspection. The children with the tidiest cabin, the cleanest appearance, and who had done something special for the campsite, won the right to hang a painted horse's skull in their cabin for the day. Further group identification came in the form of songs, group yells, and skits. Each cabin used this means to develop its own identification and group spirit.

During meals the counsellors were particularly aware of the importance of good manners. The children were served by the counsellor, who sat at the head of the table. Some groups appointed two waiters and others used only one. The system agreed upon was left up to the individual group to decide and implement.

A different mood was permitted expression at each meal. Following breakfast the counsellors and staff took turns giving short inspirational talks in the form of stories about some facet of life. At noon when the children were more excited they were given the privilege of expressing their feelings in spontaneous cheers, chants, and poems, about rival cabin groups. The fun was usually finalized with a long sing song. Supper, like breakfast, was intended to be quieter. The only activity was the occasional sing song of a more subdued nature. The director concluded each meal by giving announcements pertaining to the activity to follow and then dismissed the students.

Directly after dinner all campers retired for a rest period at which time they could sleep, read, write letters or sometimes talk quietly. It was found that due to the increased physical activity at camp most campers immediately went to sleep.

There was little time for leisure at either camp. However, whenever students were free, they played such games as tag, tether ball, and a form of chase soccer. In the formal play periods the children learned such field games as capture the flag, and kick the can.

Weather.

The weather conditions (see Table II) were similar for both camps. The temperature range varied only .7 of a degree making the 1965 camp slightly colder. The same trend occurred with the rain. The 1965 camp had an average of .06 inches more precipitation per day than the 1964 camp. A comparison of temperature and precipitation "means" for the week with those for the month of June indicates that the conditions were not the best for an outdoor school. The daily weather summary found in the Table will help ascertain the necessity of fitting the program to the weather conditions. In some respects this in itself was a worthwhile adjustment for students who lived by the clock rather than the dictates of the weather.

The rain fell in a random fashion enabling the program to be conducted in the drier periods.

What effect the damp weather had on the students morale cannot be adequately measured. The staff, from their subjective observations would suggest that it mattered little, the campers' spirits

TABLE II

JUNE 1964 AND 1965

A RECORD OF OBSERVATIONS TAKEN AT THE MUNICIPAL AIRPORT, CALGARY, ALTA.

Date	1964 Mean of Max. & Min. Readings	1965 Mean of Max. & Min. Readings	Precipitation Total 1964	Precipitation Total 1965	Daily Weather Summary June 1964	Daily Weather Summary June 1965
Mon.	58	53	.31	.09	Cloudy warm Thunderstorm Late evening	Variable cloudiness With showers and Thundershowers
Tues.	55	50	.32	.86	Overcast cool Occasional Light drizzle	Overcast with rain The entire period
Wed.	51	53	.39	.14	Overcast cool Rainshowers Most of period	Overcast and cool With intermittent Rain and fog
Thurs.	51	53	T	.93	Cloudy and cool	Overcast and cool With intermittent Rain and fog
Fri.	53	59	.06	.09	Cloudy and cool With rainshowers	Cloudy and warm With showers
Sat.	53	49	1.38	.74	Cloudy, cool Light to heavy Rainshowers	Variable cool, cloudy Thundershowers
Mean	53.5	52.8	.41	.47		
Mean for June	55.4	54.5	.13	.22		

stayed high, and most learned they could have fun in the rain as long as they had adequate clothing. In regard to the evaluation of their attitudes it was important that weather conditions remained nearly the same for both camps.

The Program.

The administrative personnel at the camp attempted to promote the philosophy of using the natural environment for all learning. Inexperience on their part prevented this tenant to be fully exploited during the first days of the 1964 camp. The project nearly developed into the utilization of a classroom in the country for three reasons. First, the resource personnel on the most part were only able to visit the camp after work on week days or on holidays. As a consequence when they arrived at camp, if the rain was falling the session was conducted indoors. Second, the personnel had not quite grasped the idea of using the natural setting, and third, there was a hesitancy on the part of administration to deviate from the normal school schedule.

Soon realizing that the objective of school camping would not be achieved unless a more radical approach was taken, an effort was made to adjust as much as possible to the weather. The program was shifted where necessary and resource personnel were encouraged to utilize the natural laboratory at their disposal.

During the 1965 camp the situation had improved immensely. The administrative core, because of their previous experience, were able to adjust to the conditions with greater ease, and resource personnel were better orientated to the objectives of the program. In addition one of the naturalists, Mr. Tanner, came to live at camp.

Adjustments were rapidly made according to the physical or mental state of the children, thus putting the needs of the child before the goals of the program. It was found after the excitement of the first few days had subsided, that suddenly the children seemed fatigued. When this was observed, the evening program was shortened and everyone went to bed early. On the hikes into the woods, if interest was high or if the group was involved in a project, some other area of the program was shortened to accommodate the situation. On a number of occasions when rain prevented an outdoor campfire the evening program was held around the fireplace in the lodge.

This is not to imply that there was little order to camp life. The basic schedule: rising bell in the morning, three meals per day on time, the starting of school, and retiring at night was kept constant.

Learning.

Precamp. Mrs. Gauley, the homeroom teacher, effectively used the stimulus of "going to camp" to inspire her students to greater activity in the classroom. Enthusiastically they learned about animals, insects, and plants of Alberta. Information about habitat, living habits, were researched out, recorded and discussed. The studies in geography, farming, and topography were related to the camp setting. The students wrote stories about different aspects of outdoor life. They practiced songs for campfire, graces for meal time, made nets to catch small fish, insects and butterflies. Each child was responsible for organizing a work book which contained different sections on the

various subjects of study. To help the students, most of the material to be used by the resource people was given out well before the camp began (Appendices E and F).

In view of the pre-camp interest developed in learning science, social studies, and music, educators should concur that this in itself was important. One of the most pressing problems in education is motivation. These classes were stimulated, first by the enthusiasm of the homeroom teacher, and second by the imagination concerning the activities at camp. Both groups arrived at camp on the crest of anticipation for an experience that was completely foreign to over 50 percent of them.

General Learning. The impact of nature comes in all its various modes through the senses. The children on arrival at camp enter an environment which for many is completely foreign. There are new sounds, smells, feelings, and sights, which impress themselves upon the whole organism.

There is a response to stimuli which results from reality contact, effecting a change that is difficult to describe and even more difficult to measure.

Random Identification. Throughout the six days many walks were taken through the bush land. On these forays, children collected at random; rocks, insects, bark, and, on occasion, wild flowers. These were either identified on the spot by the resource personnel or were carried back to camp for identification at a later date.

Channelled Identification and Verification. Most of the resource personnel followed this technique for part of their sessions. Miss Barkley and Mr. Tanner both showed a series of slides on trees, shrubs, flowers, plants, animals, and insects. Mr. Winnick brought animals out from the zoo for the children to observe. Following these sessions the students were taken out over a pre-toured trail that contained the items observed in the classroom. They were encouraged to find the particular trees, shrubs, plants, animals, or insects on their own. If this proved too difficult a minimal number of clues were given.

This method gave the students specific goals to achieve, which often produced a welcome change from random identification. This type of learning stimulates a hunt for treasure with a minimum of clues.

Association. On all sessions the teachers tried to guide the students into a broader knowledge of the inter-relationships of life. This proved easier as the principal objects in the outdoors became common. As students became more knowledgeable about the parts, they sought to understand their relationship to the whole ecology of nature. This led to a discovery of natural law and an increasing curiosity of the meaning of man's place in the scheme of the universe.

Action Learning. Many aspects of learning are best achieved by participation in the activity itself. Catching small crustaceans and fish from the creek with home made nets made this activity more interesting because everyone was taking part.

In the first sessions there was a tendency to take too long demonstrating the correct techniques, leaving little time for participation. With careful planning, the time spent on demonstration was reduced,

and the majority of time was left for the student to "learn-by-doing". In small groups of three or less they learned how to light a fire by first gathering sufficient tinder, dry twigs from spruce trees, grass, and then dead wood for later use. The skill of caring and using axe and knife was learned through practice. The same procedure was used in shelter building, and the use of compass.

A variation of this approach, was to give students an idea, for example, on the principles of shelter building in the outdoors, and then have them construct their own, using only a sheet of plastic and some string. This helped to bring out the ideas in the groups and gave some scope to creativity.

Special Features of the Area.

Many of the children at the camp had never been on a farm. They found the trip to the Barnes' farm a thrilling adventure. For the first time some of them saw a cow milked, were able to fondle the calves, look at the bull, and ride the saddle horses. Mr. Barnes explained how the milk production was kept at a high level, showed how it was cooled and stored for shipping. He also answered innumerable questions about animal life. To their surprise the children found that the Barnes family, even though they were farmers, lived in a comfortable home. Once inside, the children also learned how good homemade doughnuts and cocoa tasted after an afternoon of excitement.

They had a historical experience upon visiting the Robinson ranch next door to the camp. Mrs. Robinson was able to relate stories of early pioneer days in the region. To dramatize her tales she had

authentic Indian articles from peace pipes to moccasins. Her daughter, Miss Robinson, added much to the conversation by telling stories related to her paintings of Indian personalities and activities of early days.

Evening Highlights.

The three evening highlights in both camps were the Indian Dances put on by Chief Starlight and his sons, the non-denominational service on Alberta's pioneers led by Rev. Bob Wallace, and the Friday night camp fire. The Indian dancers were colorful in their beaded costumes. After the beat of the drum had subsided the children and adults asked many questions concerning the folklore of the Indians. The non-denominational service, commenced with a candle light parade, each student carrying his candle through the darkness to the chapel. Rev. Wallace stirred their imaginations with his accounts of the dynamic pioneers of Alberta. After the service was over all filed back to their cabins to bed. To finalize the events of the week, a council fire was held on Friday night to which all the parents were invited. The camp Director started the council fire with a special ceremony. Each cabin group acted out a skit or play. This was followed by a rousing sing song, and the evening was concluded with the singing of Taps after which the parents were treated to coffee and cocoa in the dining hall.

General Comments.

The experimenter and the rest of the staff spent some time each day discussing problems arising from group and individual interaction

A limited amount of social engineering was conducted to help improve rapport between the counsellor and students, and between the students themselves. Observations were made concerning the behavior of individuals and measures to make this behavior more socially acceptable, were taken. In the short period of time allotted for this project, every effort was made to make the setting the best possible to permit optimum attitude growth and social development.

It would be naive to suggest that the two camps were identical, however, a great many factors were closely related, and as a result this should help standardize the results. This will be further dealt with in the evaluation.

CHAPTER IV

METHODS AND PROCEDURES

I. THE SAMPLE

The students attending Colonel Walker School came from the southeast section of Calgary. Pertinent information about the ethnic origin, language, religion, economic status, housing, and employment, of the people in this area, was taken from the Census Tract of the Metropolitan area of Calgary (Fig. 4). The school boundaries encompassed in the Census Map (Fig. 4), section one, and part of section eleven, are represented by Bonnybrook and Inglewood communities. The information presented on the sample is primarily taken from sections one and eleven.

Physical Characteristics of the Area.

This part of the city has at present a large number of production and storage business. The R.C.A.F. Equipment Depot, approximately four blocks wide and eight blocks long, is bounded by 34 Avenue S.E., Portland Street, and 26 Avenue S.E. Across the Canadian Pacific freight yards is the B.A. Oil Company site which takes in an even larger property than the R.C.A.F. Depot. In conjunction with the aquarium and fish hatchery is the Calgary Brewing Company. The C.P.R. Round House lends an air of industry and commerce. A variety of small shops form a continuous chain along 9 Avenue S.E. Heavy traffic from 24 Street and the Blackfoot Trail converges onto 99 Street. As the area becomes progressively taken over by industry the new ethnic

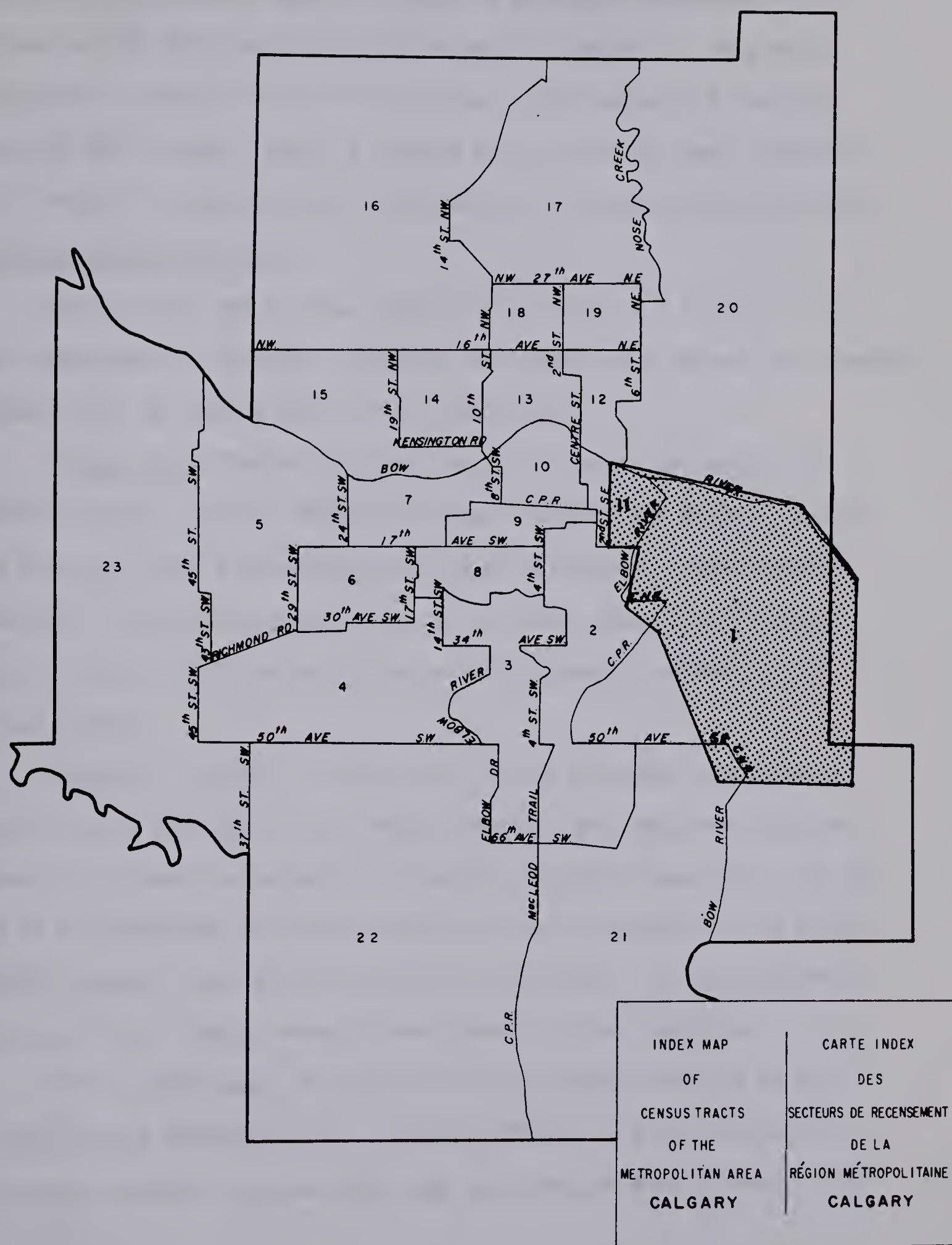


FIG. IV

AREA FROM WHICH COLONEL WALKER SCHOOL OBTAINS STUDENTS
SECTION ONE AND SECTION ELEVEN

groups (1) and laboring class will move in to make their homes in the old houses left standing alongside the modern factories. At present this part of Calgary cannot be classed as a slum because of the good repair on most houses. About 5 percent are in need of repair compared to 14 percent in section eleven and 8 percent in area eight (Table III).

Population Characteristics.

Section one and section eleven contain over 0.7 percent of the city's population. Of this, 9 percent are males and 6 percent are females, exceeded only by areas four and five (Table IV).

Ethnicity. The two sections contain a larger percentage of Italian, Polish, Russian, Ukrainian, other European and Asiatic minorities than any other comparable census area in Calgary. The languages classified "neither English nor French" are here spoken, indicating ethnic enclaves (2:82) where the national language is spoken in the primary groups.

Church. Similar to other areas in the city most individuals are affiliated with the United, Roman Catholic, and Anglican Churches. Because of a large concentration of eastern European minorities, 33 percent of all Ukrainian and Greek Catholics, and 33 percent of all Greek Orthodox members, come from sections one and eleven. In contrast only 4 percent of the Jewish community are found in these sections.

In the 1964 camp, 18 percent of the students belonged to one of the Catholic denominations. The rest adhered to a wide variety of Protestant churches. In the 1965 camp no Catholics were present. This

TABLE III

CHARACTERISTICS OF THE LABOUR FORCE POPULATION BY CENSUS TRACT, CENSUS METROPOLITAN AREA OF CALGARY, 1961

No.	Characteristics of the labour force population	Metro- politan area Zone m��tro- politaine	Calgary, city - cit��												
			Total	1	2	3	4	5	6	7	8	9	10	11	12
1	Population, 15 years and over . . .	184,987	168,520	8,286	8,024	8,018	13,127	12,434	7,229	4,899	6,784	6,074	3,469	4,935	5,027
2	Males	92,260	83,798	4,393	3,791	3,822	6,725	6,145	3,500	2,256	3,031	2,742	1,788	3,422	2,487
3	Females	92,727	84,722	3,893	4,233	4,196	6,402	6,289	3,729	2,643	3,753	3,332	1,681	1,513	2,540
4	Labour force	109,256	99,349	4,747	5,041	4,243	7,919	7,425	4,303	2,781	3,905	3,756	2,034	2,665	2,774
5	Males	76,651	69,328	3,529	2,999	3,121	5,964	5,379	2,898	1,771	2,296	1,989	1,239	2,119	1,866
6	Females	32,605	30,021	1,218	2,042	1,122	1,955	2,046	1,405	1,010	1,609	1,767	795	546	908
<u>Employment status</u>															
Males															
7	With a job	74,176	67,174	3,390	2,843	3,059	5,878	5,247	2,826	1,690	2,218	1,850	1,149	1,909	1,803
8	Looking for work	2,475	2,154	139	156	62	86	132	72	81	78	139	90	210	63
Females															
9	With a job	31,682	29,197	1,180	2,002	1,102	1,903	1,986	1,363	970	1,576	1,732	767	517	881
10	Looking for work	923	824	38	40	20	52	60	42	40	33	35	28	29	27
<u>Class of worker</u>															
Males															
11	Wage-earners	68,564	61,995	3,289	2,719	2,345	5,350	4,864	2,604	1,514	1,949	1,816	1,114	1,985	1,696
12	Self-employed	8,027	7,294	238	278	776	611	515	294	256	343	173	125	133	170
13	Unpaid family workers	60	39	2	2	-	3	-	-	1	4	-	-	1	-
Females															
14	Wage-earners	31,066	28,610	1,174	1,953	1,033	1,841	1,967	1,342	963	1,536	1,691	742	475	868
15	Self-employed	1,203	1,129	32	78	71	84	61	50	38	66	70	51	64	33
16	Unpaid family workers	336	282	12	11	18	30	18	13	9	7	6	2	7	7
<u>Occupation division</u>															
Males															
17	Managerial	11,086	10,601	223	332	1,091	935	858	473	325	446	199	105	90	173
18	Professional and technical	8,611	8,378	95	261	688	675	820	374	223	332	226	70	30	150
19	Clerical	6,851	6,391	277	299	200	415	581	307	171	235	232	132	93	191
20	Sales	6,611	6,200	155	229	262	486	653	293	143	196	157	88	53	125
21	Service and recreation	8,725	8,114	264	338	137	1,860	425	304	166	225	285	266	412	203
22	Transport and communication	6,333	5,225	528	285	128	270	361	194	129	127	148	115	175	167
23	Primary	1,701	1,399	84	94	50	56	68	41	21	43	47	36	127	49
24	Craftsmen, production process, and related workers	20,315	17,278	1,423	817	384	962	1,322	734	441	510	478	310	652	595
25	Labourers	4,406	3,847	401	266	95	158	221	108	104	107	149	89	417	164
Females															
26	Managerial	899	831	28	50	55	65	51	36	29	55	53	22	5	22
27	Professional and technical	4,568	4,324	78	482	227	247	300	200	148	299	218	58	16	97
28	Clerical	13,152	12,408	396	713	415	872	957	669	436	717	862	315	86	374
29	Sales	3,144	2,902	98	137	117	230	218	134	90	113	124	46	31	95
30	Service and recreation	7,404	6,471	410	494	230	350	359	244	209	286	339	258	306	227
31	Transport and communication	821	750	30	37	14	49	52	35	24	38	58	29	12	27
32	Primary	60	43	3	2	-	2	1	2	-	2	-	1	3	-
33	Craftsmen, production process, and related workers	1,473	1,300	117	72	22	68	71	53	45	42	60	43	53	40
34	Labourers	298	256	29	14	6	10	11	10	6	10	9	8	18	9
<u>Wage and salary income</u>															
Males															
35	Under \$1,000	4,558	4,095	225	209	200	270	270	169	124	148	174	115	295	148
36	\$1,000 - \$1,999	4,458	4,004	241	296	116	257	187	124	138	163	177	183	420	138
37	2,000 - 2,999	7,479	6,586	416	362	117	534	395	257	233	229	312	231	435	282
38	3,000 - 3,999	14,912	12,881	952	715	271	1,068	971	566	348	420	472	274	424	446
39	4,000 - 5,999	22,437	20,224	1,169	712	466	1,896	1,811	912	364	527	399	232	274	502
40	6,000 and over	11,972	11,636	181	296	999	1,155	1,116	491	249	360	165	36	30	122
41	\$ 6,000 - \$9,999	9,496	9,182	172	245	477	902	919	402	138	237	144	33	29	114
42	10,000 and over	2,476	2,454	9	51	522	253	197	89	111	123	21	3	1	8
43	Average wage and salary income . . \$	4,256	4,334	3,528	3,626	6,445	4,623	4,645	4,377	4,209	4,327	3,402	2,903	2,468	3,447
Females															
44	Under \$1,000	6,735	5,922	263	291	239	419	433	283	174	212	248	108	141	149
45	\$1,000 - \$1,999	5,998	5,449	302	332	200	343	389	232	186	241	247	179	148	186
46	2,000 - 2,999	8,397	7,793	319	478	204	488	543	398	275	434	470	269	112	279
47	3,000 - 3,999	5,616	5,377	173	362	176	360	369	291	205	380	428	132	32	163
48	4,000 - 5,999	2,205	2,101	58	141	113	120	156	95	70	171	205	28	10	56
49	6,000 and over	334	326	3	24	26	12	22	14	15	32	21	5	1	11
50	Average wage and salary income . . \$	2,137	2,178	1,899	2,309	2,263	2,104	2,154	2,237	2,275	2,567	2,541	2,162	1,579	2,227

TABLE IV

GENERAL POPULATION CHARACTERISTICS BY CENSUS TRACTS, CENSUS METROPOLITAN AREA OF CALGARY, 1961

General population characteristics			Calgary, city - cit��												
No.		Metro- politan area													
		Zone m��tro- politaine	Total	1	2	3	4	5	6	7	8	9	10	11	12
1	Population, 1961	279,062	249,641	12,497	10,133	11,818	21,418	20,340	10,164	6,441	8,390	6,975	4,039	5,952	6,387
2	" , 1956	201,022	184,190	10,698	10,431	9,697	15,090	13,137	9,713	6,239	8,183	7,378	4,750	7,103	7,017
Sex and age group															
3	Males	140,435	125,304	6,567	4,874	5,754	11,011	10,204	4,979	3,073	3,816	3,186	2,092	3,955	3,205
4	0 - 4 years	19,828	17,117	855	453	591	1,667	1,734	600	315	313	192	136	230	313
5	5 - 9	16,212	13,894	724	354	724	1,508	1,386	451	299	244	124	84	165	215
6	10 - 14	12,135	10,495	595	276	617	1,111	939	428	243	228	128	84	138	190
7	15 - 19	8,188	7,309	430	255	437	804	563	349	201	220	132	74	114	216
8	20 - 24	9,367	8,568	471	419	268	822	581	442	283	396	358	175	239	300
9	25 - 34	24,518	21,848	1,013	916	581	1,788	1,864	791	493	639	625	367	623	535
10	35 - 44	19,607	17,749	878	618	891	1,629	1,604	660	396	468	374	231	501	333
11	45 - 54	12,803	11,681	633	558	745	930	777	560	306	397	333	250	455	330
12	55 - 64	8,138	7,516	489	452	466	401	419	340	224	347	310	234	554	304
13	65 - 69	3,009	2,821	157	180	146	127	117	110	108	152	153	149	269	132
14	70 years and over	6,630	6,306	322	393	288	224	220	248	245	412	457	308	667	337
15	Females	138,627	124,337	5,930	5,259	6,064	10,407	10,136	5,185	3,368	4,574	3,789	1,947	1,997	3,182
16	0 - 4 years	18,925	16,309	879	459	574	1,492	1,641	532	297	320	209	128	206	277
17	5 - 9	15,210	13,097	649	284	673	1,388	1,274	463	223	236	136	72	149	201
18	10 - 14	11,765	10,209	509	283	621	1,125	932	461	205	265	112	66	129	164
19	15 - 19	8,796	7,918	363	450	442	580	573	374	252	292	228	136	121	216
20	20 - 24	10,738	9,780	408	605	295	670	798	538	361	481	414	190	155	303
21	25 - 34	23,331	20,730	925	768	693	1,824	1,849	720	450	692	600	278	300	412
22	35 - 44	19,516	17,799	810	725	969	1,666	1,509	764	421	520	490	244	272	373
23	45 - 54	12,742	11,802	602	614	776	849	798	570	382	527	465	256	249	412
24	55 - 64	7,924	7,429	386	452	483	402	384	361	278	475	416	230	189	378
25	65 - 69	3,112	2,975	157	189	179	129	142	152	136	198	195	90	68	150
26	70 years and over	6,568	6,289	242	430	359	282	236	250	363	568	524	257	159	296
Marital status															
27	Single, total	133,941	118,075	5,980	4,575	5,569	11,063	9,989	4,513	2,862	3,533	3,065	1,708	2,815	2,547
28	" , 15 years and over	39,866	36,954	1,769	2,466	1,769	2,772	2,083	1,578	1,320	1,927	2,164	1,138	1,798	1,187
29	Married	131,909	119,092	5,933	4,688	5,646	9,802	9,748	5,157	3,010	3,926	2,930	1,818	2,545	3,342
30	Widowed	11,180	10,570	468	690	524	472	523	432	486	823	821	396	465	434
Birthplace															
31	Born in Canada	210,110	186,970	9,270	7,015	8,951	17,293	16,137	7,626	4,427	5,618	4,464	2,437	2,965	4,017
32	Born outside of Canada	68,952	62,671	3,227	3,118	2,867	4,125	4,203	2,538	2,014	2,772	2,511	1,602	2,987	2,370
33	Immigrated, 1946-1961	38,094	33,789	1,596	1,457	1,553	2,510	2,655	1,276	1,036	1,412	1,120	628	1,306	1,053
Ethnic group															
34	British Isles	160,706	147,030	6,730	5,775	8,274	13,827	12,486	6,474	3,798	4,957	4,146	2,229	2,057	3,371
35	French	11,139	9,528	556	565	342	1,037	741	331	228	328	315	179	341	189
36	German	31,760	26,917	1,436	1,052	857	1,774	2,184	824	493	707	507	310	460	701
37	Italian	4,994	4,720	319	154	71	132	258	89	41	86	54	44	378	400
38	Netherlands	11,159	8,682	435	334	347	687	798	365	321	279	202	141	89	190
39	Polish	5,819	5,106	416	215	159	338	380	203	123	173	116	57	250	225
40	Russian	4,293	3,584	290	123	139	228	246	94	57	123	89	36	156	128
41	Scandinavian	15,938	13,983	610	509	536	1,033	1,097	555	407	379	375	263	298	414
42	Ukrainian	8,033	7,075	574	252	162	518	419	219	114	151	166	102	214	204
43	Other European	17,063	15,556	805	882	723	1,240	1,128	706	588	781	705	283	916	392
44	Asiatic	3,262	3,133	93	153	52	148	238	115	89	71	64	346	561	102
45	Other and not stated	4,896	4,327	233	119	156	456	365	189	182	355	236	49	232	71
Official language															
46	English only	267,610	239,153	12,077	9,501	11,166	20,466	19,667	9,738	6,110	7,918	6,458	3,812	5,428	6,141
47	French only	381	345	28	28	13	32	23	11	5	16	17	8	10	10
48	English and French	9,144	8,386	269	514	619	867	593	366	275	417	425	178	278	137
49	Neither English nor French	1,927	1,757	123	90	20	53	57	49	51	39	75	41	236	99
Religion															
50	Anglican Church of Canada	46,426	42,591	1,820	1,517	3,072	4,575	3,472	1,906	1,029	1,602	1,211	656	640	856
51	Baptist	11,240	10,208	536	356	357	805	796	374	261	326	277	147	206	309
52	Greek Orthodox	2,766	2,519	259	111	44	119	109	75	106	117	147	49	214	87
53	Jewish	2,881	2,866	18	89	403	406	263	231	128	240	120	42	60	30
54	Lutheran	21,203	18,195	1,033	651	419	1,141	1,276	564	423	529	383	326	549	637
55	Presbyterian	15,450	14,524	935	782	756	1,246	1,218	556	439	650	645	371	473	399
56	Roman Catholic	54,264	48,121	2,774	2,718	1,794	3,919	3,541	1,677	1,351	1,768	1,445	741	1,911	1,500
57	Ukrainian (Greek) Catholic	1,583	1,437	136	48	27	67	59	28	25	15	26	20	117	45
58	United Church of Canada	97,290	87,258	3,985	3,053	4,131	7,571	7,430	3,910	2,167	2,428	2,027	1,368	1,096	2,069
59	Other	25,959	21,922	1,001	808	815	1,569	2,176	843	512	715	694	319	686	455
Highest grade of schooling attained															
60	Attending school	61,296	53,877	2,661	1,426	3,413	5,599	4,980	2,261	1,218	1,346	673	381	597	952
61	Elementary - under 5 years	27,043	23,412	1,195	540	1,314	2,587	2,355	851	439	466	208	141	275	352
62	" - 5 years or more	19,807	17,191	911	440	1,017	1,847	1,569	720	356	398	208	120	210	289
63	High school - 1 to 2 years	6,833	6,132	314	204	399	557	528	317	167	184	85	57	65	147
64	" - 3 to 5	5,617	5,219	182	182	423	443	385	281	173					

occurrence is to be expected with the small number of Catholics, mostly Ukrainian and Greek, who come to the public school rather than attend the parochial schools in the City. Nearly all Roman Catholics in Alberta attend separate schools. This separation is made compulsory through the taxation system which allocates financial support to two school systems.

The degree of religious concern, by the students' parents for the church as a religious institution, was predicted by their response on the school's Progress Record Cards. If for the category signifying denomination, the parent stated "protestant" rather than a specific "protestant denomination", this was taken as a criterion for low interest in the church as an institution. In the 1964 sample 24 percent of the students, and in the 1965 sample 53 percent of the students were in this category.

Education. The number of parents from the area with one or more years of university are few. In section one only 3.6 percent of the population that are not attending school, fit this category, while in section eleven only 0.7 percent are in this category. In contrast the other sections of Calgary have as high as 13.5 percent of their population with one or more years of university education.

Similarly, a like difference occurs when the amount of high school education is considered. As an example, 19.6 percent of the population in section one have three or four years of high school as compared to 36 percent in section six and 33 percent in section four. These factors further confirm that the area from which the sample is

drawn is essentially one containing the most uneducated people in the city census area.

Household, Family and Dwelling Characteristics.

As indicated in Table V the people of sections one and eleven usually share family dwellings. There are two or more families to a house and when this is not the case lodgers are often taken in. The families number approximately 3.5 persons to a unit, with about 1.6 children per adult.

Housing. The median value of the houses compares favourably with sections two and twelve. Most houses range in value from \$11,528 to \$11,575 which is about \$2,095 lower than the middle class homes. The houses are old, the number being occupied more than ten years being 1,020. In section one 5.7 percent need repairs and in section eleven 14.2 percent need repairs, as compared to "no repairs needed" in sections three and seven.

Before 1920, 58 percent of all houses in the city of Calgary were built in sections one, two, eight, nine, ten, and eleven (Fig. 4). Of these 8 percent were built in section one and 8.5 percent were built in section eleven. After 1945 of the 50,654 dwellings built, only 2.8 percent were constructed in section one and none were constructed in section eleven. In 1964, Mr. Coffin (3) then principal of Colonel Walker School, stated that no building permits had been issued for private dwellings in the area for five years. This regulation implies that section one will soon be taken over by commercial enterprise.

TABLE V

HOUSEHOLD, FAMILY, AND DWELLING CHARACTERISTICS BY CENSUS TRACTS,
CENSUS METROPOLITAN AREA OF CALGARY, 1961

No.	Household, family, and dwelling characteristics	Metro- politan area Zone m�tropolitaine	Calgary, city - cite												
			Total	1	2	3	4	5	6	7	8	9	10	11	12
1	Households (occupied dwellings) . .	78,396	71,586	3,470	3,533	3,317	5,310	5,296	3,108	2,254	3,118	3,247	1,582	1,673	2,149
2	Families	67,552	60,968	3,054	2,378	2,940	5,040	5,035	2,686	1,551	2,041	1,485	837	1,023	1,703
	<u>Households</u>														
	By number of persons:														
3	1	9,508	9,182	423	989	294	213	231	285	545	806	1,429	676	695	356
4	2 - 3	32,788	30,646	1,413	1,684	1,480	2,049	2,116	1,595	1,070	1,618	1,444	626	501	1,150
5	4 - 5	26,528	23,710	1,151	592	1,144	2,249	2,248	967	460	486	275	194	259	485
6	6 - 9	9,246	7,800	460	253	388	774	687	257	174	198	96	78	196	152
7	10 or more	326	248	23	15	11	25	14	4	5	10	3	8	22	6
8	Persons per household	3.4	3.4	3.5	2.6	3.5	3.9	3.8	3.2	2.8	2.6	2.0	2.3	2.8	2.9
	By number of families:														
9	0	13,017	12,587	534	1,313	431	359	368	464	729	1,130	1,814	833	854	504
10	1	63,732	57,526	2,830	2,141	2,844	4,867	4,823	2,604	1,501	1,937	1,398	712	735	1,592
11	2 or more	1,647	1,473	106	79	42	84	105	40	24	51	35	37	84	53
12	Households with lodgers	5,608	5,189	324	356	186	245	286	173	161	211	207	213	349	212
	<u>Families</u>														
	By number of children:														
13	0	19,533	18,400	911	1,106	946	1,072	1,109	934	643	1,020	855	451	445	768
14	1 - 2	31,024	28,079	1,368	925	1,223	2,388	2,549	1,215	615	740	502	310	419	707
15	3 - 4	14,289	12,328	637	280	644	1,331	1,174	486	248	230	107	66	123	194
16	5 or more	2,706	2,161	138	67	127	249	203	51	45	51	21	10	36	34
	Children in families, by age:														
17	Under 6 years	45,267	39,004	1,950	1,032	1,367	3,779	3,949	1,284	700	709	445	293	498	678
18	6 - 14 years	47,540	41,153	2,186	1,038	2,345	4,446	3,835	1,602	827	873	436	259	502	662
19	15 - 18 "	11,503	10,235	559	342	673	901	823	504	277	310	139	89	112	290
20	19 - 24 "	5,741	5,207	312	204	366	410	358	269	174	210	111	65	88	203
21	Persons per family	3.6	3.5	3.6	3.0	3.6	3.9	3.8	3.3	3.2	3.0	2.7	2.8	3.1	3.0
22	Children " "	1.6	1.6	1.6	1.1	1.6	1.9	1.8	1.4	1.3	1.0	.8	.8	1.2	1.1
	<u>Families by age of head:</u>														
23	Under 25 years	3,976	3,580	197	180	54	274	323	220	111	166	123	59	61	111
24	25 - 34 "	19,887	17,489	782	590	439	1,547	1,640	625	343	430	337	179	253	343
25	35 - 44 "	18,059	16,247	767	465	842	1,588	1,598	634	341	375	266	142	214	282
26	45 - 54 "	11,895	10,809	562	429	751	936	794	561	279	352	254	140	173	302
27	55 - 64 "	6,989	6,432	405	331	458	385	409	338	201	309	200	118	171	281
28	65 - 69 "	2,331	2,193	132	128	141	116	104	107	88	129	86	64	51	123
29	70 years and over	4,415	4,218	209	255	255	194	167	201	188	280	219	135	100	261
30	Families with wage-earner heads . .	52,129	46,766	2,383	1,723	1,821	4,045	4,185	2,053	1,011	1,332	1,031	534	702	1,147
31	Wage and salary income per head \$	4,695	4,800	3,808	3,886	7,440	5,242	4,933	4,710	4,754	4,778	3,508	3,118	2,773	3,665
32	" " " " family \$	5,504	5,616	4,632	4,806	8,129	5,936	5,699	5,648	5,651	5,777	4,444	3,956	3,435	4,667
33	Lodging families	1,038	981	61	131	20	15	35	7	10	21	27	73	162	28
	<u>Occupied dwellings</u>														
34	Single detached	50,802	45,037	2,311	1,221	2,641	3,602	3,346	1,797	1,109	1,116	562	390	586	1,277
35	Apartments, flats	22,132	21,570	880	2,034	563	1,018	1,269	1,088	998	1,945	2,459	1,157	969	560
36	Rooms per dwelling	5.0	5.0	4.9	3.9	6.2	5.4	5.1	4.9	4.6	4.5	3.5	3.5	3.9	4.7
37	Persons per room . . . . .	.7	.7	.7	.7	.6	.7	.8	.7	.6	.6	.6	.6	.8	.6
38	Crowded dwellings	8,189	6,345	447	303	132	403	611	234	174	222	144	91	230	212
39	Owner-occupied dwellings	49,623	44,330	2,288	1,165	2,598	3,201	3,416	1,917	971	1,173	573	334	554	1,249
40	Median value	14,850	15,252	11,575	13,670	20,764	15,837	15,261	14,351	17,865	18,780	15,064	18,546	11,528	11,571
41	Reporting a mortgage	28,796	25,452	819	294	1,433	2,333	2,375	905	325	217	--	--	--	163
42	Tenant-occupied dwellings	28,773	27,257	1,182	2,368	719	2,109	1,880	1,191	1,283	1,945	2,674	1,248	1,119	900
43	Average contract rent	77	77	65	71	116	90	88	85	72	81	69	55	58	69
	<u>Length of occupancy:</u>														
44	Less than 1 year	18,938	17,313	602	1,154	501	1,236	1,252	779	651	1,010	1,242	503	336	470
45	1 - 2 years	17,781	16,118	616	636	548	1,271	1,179	477	486	653	634	260	275	287
46	3 - 5 "	17,154	15,282	767	551	889	1,407	1,573	535	363	375	485	323	310	213
47	6 - 10 "	11,659	10,644	465	421	668	948	1,025	755	231	363	311	142	219	419
48	More than 10 years	12,864	12,230	1,020	771	711	448	267	562	523	717	575	354	533	760
	<u>Period of construction:</u>														
49	Before 1920	15,364	15,145	1,228	1,685	387	306	--	320	832	1,485	1,930	1,296	1,291	660
50	Since 1945	50,654	44,857	1,287	1,059	2,102	4,693	4,860	2,383	628	982	606	--	--	439
51	In need of major repair	2,774	2,452	139	172	--	111	101	--	110	205	196	167	345	--
	<u>Water supply and sewage disposal:</u>														
52	Water from public system	75,196	69,733	3,374	3,475	3,247	5,135	5,244	3,087	2,226	3,076	3,188	1,513	1,345	2,104
53	Connection to public sewer	76,004	70,515	3,381	3,522	3,287	5,295	5,276	3,103	2,249	3,101	3,205	1,572	1,436	2,119
	<u>Dwellings with:</u>														
54	Furnace heating	71,891	66,931	3,039	3,132	3,196	5,144	5,148	2,929	2,072	3,020	3,020	1,375	1,190	1,996
55	Flush toilet (exclusive use)	68,466	62,633	2,895	2,704	3,129	5,010	5,128	2,997	1,843	2,636	2,132	775	671	1,842
56	Bath or shower (" ")	70,517	64,447	2,903	2,707	3,244	5,218	5,214	2,979	1,868	2,655	2,229	823	661	1,911
57	Refrigerator (mechanical)	75,419	68,859	3,330	3,207	3,291	5,285	5,250	3,057	2,117	2,988	2,901	1,301	1,120	2,055
58	Home freezer	14,605	13,000	629	265	833	1,361	1,124	536	230	240	126	--	--	219
59	Television	68,359	62,265	3,048	2,789	3,030	4,927	4,873	2,833	1,786	2,504	2,160	1,060	935	1,840
60	Passenger automobile	60,731	54,990	2,332	2,125	2,870	4,615	4,716	2,398	1,506	2,007	1,479	675	582	1,388

The Labor Force Characteristics

In comparison with other sections of Calgary the wages per earner in section one are higher than the average; possibly because many work in heavy industry. In section eleven, however, the wages per family head are less than half the average. There are 4,747 males in the work force of which 8.2 percent are in the labor force and only 2.1 percent are in the managerial class. On the other hand this section contains 8 percent of all craftsmen, production and related workers, 10 percent of the transport and communication workers, and 10.4 percent of the city's laborers. Their average salary is \$3,528, which is as high as areas nine, ten, eleven, and twelve, which are also older parts of the city.

Colonel Walker School

The High school building is typically pre-World War II construction with high ceilings, wide corridors, and hanging lights. A new addition has been added recently containing a gymnasium, library, and modern classrooms. The elementary students use the new classrooms while the total school population use the library and gymnasium.

The school is administered by one principal and two vice-principals; Mrs. E. Gauley, home room teacher for the elementary students who went to camp, and Mr. Ranald White in charge of the high school, who acted as director of the outdoor school.

School Ability Scores

Reference to Table VI shows that in 1962 the average mental ability of the 1964 sample was 102 and the 1965 sample was 107. According to Morgenroth, (4) the California Mental Ability Test scores

TABLE VI

RESULTS OF MENTAL ABILITY TESTS GIVEN AT
COLONEL WALKER IN 1962. THE OUTDOOR
SCHOOL SAMPLE WAS AT THAT TIME
GRADE 3 AND GRADE 4.

	DETROIT			CALIFORNIA			LAYCOCK			
I.Q.	Gr.1	Gr.2	Gr.3	Gr.4	Gr.5	Gr.6	Gr.7	Gr.8	Gr.9	Total
60							1			1
65	1								1	2
70										0
75	3		1	1					3	8
80	1		1	2	5		4	4	10	27
85	3			6	2	4	5	1	13	34
90	2	1	1	6	4	4	10	4	10	42
95		3	1	7	5	2	5	4	12	39
100	6	2	4	4	9	7	9	17	14	72
105	3	6	4	7	6	1	6	10	11	54
110	10	9	5	9	4	4	9	5	7	62
115	4	5	4	2	3		6	5	5	34
120	3	3	5	6	2	1	5	3	4	32
125		4	1	3	1			3	2	14
130	1	2			2			1	2	8
135	2								2	4
140					2					2
145										0
150									1	1
No.	39	35	27	53	45	23	60	57	97	436
Ave.	104	111	107	102	103	98	100	103	98	102

would indicate slightly above average ability for the test samples. A more specific breakdown of individual cases is found in Table VII where 28.8 percent of the cases have an IQ of 100-109, whereas the norm for the Stranford Binet is 23.5 percent. In Colonel Walker the number of

students at 120-129 is 10.5 percent compared to an average norm of 8.2 percent. Significantly when the IQ approaches 140 the Colonel Walker average drops to 0.7 percent as compared to the norm of 1.3 percent on the Stanford Binet.

The data confirm that the students in the sample are above the norms set by the Stanford Binet Test until the IQ reaches 130.

TABLE VII

A COMPARISON BETWEEN COLONEL WALKER
IQ CONVERSION SCORES AND THE
STANDARD BINET TEST NORMS

IQ	Percent of Cases		Accumulated Percentage	
	St.B.	C.W.	St.B.	C.W.
140	1.3	.7	99.9	99.8
130 - 139	3.1	2.7	98.6	99.1
120 - 129	8.2	10.5	95.5	96.4
110 - 119	18.1	22.0	87.3	85.9
100 - 109	23.5	28.8	69.2	63.9
90 - 99	23.0	18.6	45.7	35.1
80 - 89	14.5	14.0	22.7	16.5
70 - 79	5.6	1.8	8.2	2.5
60 - 69	2.0	.7	2.6	.7
Below 60	0.6	0.0	.6	0.0

Grade VI Class 1964 - 1965

In reference to the boys and girls in Grade VI in 1964 and 1965 differences and similarities can be observed in Table VIII and Table IX.

TABLE VIII

A COMPARISON OF THE ACHIEVEMENT TEST
PERCENTILES AND MENTAL ABILITY MEANS

	1964	1965	Difference
Stanford Achievement Test Int. Battery Form J	57.4	55.1	2.3
California Elem. IQ Test	121.3	117.8	3.5

TABLE IX

A COMPARISON OF NUMBERS OF STUDENTS OBTAINING
DIFFERENT REPORT CARD RANKS

Report Card Results	1964 No. Students as a percentage	1965 No. Students as a percentage	Difference in percent
H	38.2	13.8	24.4
A	26.5	39.0	12.5
B	26.5	31.0	4.5
C	8.8	17.2	8.4

Achievement. Table VIII indicates a slight difference in the results of the achievement and IQ averages for the 1964 and 1965 groups. The 1964 group had an advantage of 2.3 in achievement and 3.5 in mental ability. A comparison of report card results as found in Table IX shows that the 1964 group had 24.4 more students obtaining Hs than the 1965 group; in contrast, however, the 1965 group have 12.5 more As and 4.5 more Bs. Mrs. Gauley (5), the homeroom teacher, stated that on the whole the 1964 group were emotionally and physically more mature students, even though the difference in average age between the groups was 0.1 years.

Family Background. The children's parents represent the whole continuum of society. In occupation, two fathers were professionals, three foremen, one a businessman, a large number worked for the railway, the rest at a variety of skilled and non-skilled trades. Some families were torn by marital strife, in some instances there was only one parent to both care for the children and earn a living; but the majority of families had happy home environments.

However, since the area is fast becoming industrialized, the lack of social stability resulting from this transition will have its affect on family life. Instead of the people of the area exerting a strong control over the nature of social life in their community, the industrial environment will exert more and more influence over its character. When this occurs there often results a strong clash between values in the home and those in the community, leaving its mark on the attitude of the student.

Camping Experiences. Of the 1964 group, 63 percent had never been camping in the country; 47 percent of this group had been in the country with their parents to visit parks or farms. Only 25 percent had ever attended an organized camp, and of these only 3 percent had ever been to a camp for more than one week's duration.

Of the 1965 group 40 percent had never been camping in the country; 33 percent of this group had been for a visit to the country with their parents, while only 26 percent of the group at one time or another had been to formal Young Men's Christian Association, church, or scout camps.

Staff Observation. At camp the staff observed that the students appeared to be happy and enthusiastic in spite of damp weather. A few were homesick on the second day at camp, but soon recuperated. Some students identified strongly with certain staff members. This may have resulted from being away from the affection of a close family for the first time; for others this was possibly one of the first times they had been able to display affection for adults without fear of rejection. In both camps the students demonstrated a desire to stay longer which tends to be the normal reaction of most children.

II. RESEARCH DESIGN GUTTMAN SCALES

Pre-test I

1. Over 150 questions were developed using some modifications of various scales developed on conservation (6:54-63), (7:63-68), science (8), (9:320-326), mathematics (10:19-24), physical education (11:176-181), (12:114-126), and health (13:309-318). Other sources of material came from the articles and selected readings in child development found in the review of the literature.
2. The first questions were then reviewed by the research advisor before being re-written. After further analysis they were put in a test booklet which dealt with the areas in science, conservation, attitude toward others, and outdoor and campcraft skills (Appendix G).
3. The Edmonton Public School Board was contacted, and permission gained to administer the attitude tests.
4. The scales were pre-tested on 116 Grade VI children taken from two different schools. Half of the sample came from the McKernan Public School, situated close to the University of Alberta, Edmonton. The other half of the sample came from Mill Creek School, situated close to 97 Street and 75 Avenue. This is an older section of town (14) with a slightly lower socio-economic status according to its position in the city. The children ranged in IQ from 80-140 and had different camping experiences.

5. Once the data were obtained, the results were punched on I.B.M. cards for sorting.
6. Scales of five items were selected from the test (Appendix G--refer to underlined code numbers for items used) to determine internal consistency.

Results.

1. Using the sorter to find the internal consistency between items the following coefficients of reproducibility emerged:

(a) Science	M.M.R. = .72
	C.R. = .89
(b) Conservation	M.M.R. = .71
	C.R. = .85
(c) Social Studies	M.M.R. = .75
	C.R. = .86
(d) Attitude Toward Others	M.M.R. = .70
	C.R. = .85
(e) Outdoor and Campcraft Skills	M.M.R. = .73
	C.R. = .83

Discussion. The results of the test indicated that some important changes should be made. Information concerning the occupation of the father and the family habits related to camping was included (Appendix H). It was also found that the test took approximately 35-40 minutes. Certain corrections made while giving the test were included particularly in regard to the meaning of words. Many items were discarded or changed. It was found that particular items brought forth a

high error from the sample indicating that in terms of the child's interpretation these items were too ambiguous.

Pre-test II.

Contact was made with Mr. Roy Bowman (15) of Carstairs High School concerning a field trip planned for a group of Grades V and VI students to the Drumheller Badlands. Mr. Garry de Leeuw, Assistant Superintendent, had inspired the project. Through the co-operation of Mr. Bill Stickly, the homeroom teacher, the project was planned and put into effect. The experimenter chose this group of students for his second pre-test for the following reasons:

1. The students were farm children who would have supposedly an understanding of many of the concepts used in the test items.
2. Mr. Stickly had spent a great deal of time with the children studying the geology, topography, and climate, of the Drumheller area. Like the test group in Calgary his students would have received considerable preparation for their venture, and consequently the interest in the project should be high producing a greater positive response to the items.
3. The experimenter hypothesized that the combination of teaching and natural association with nature would produce results on the test similar to those in Calgary.
4. Tests were administered (Appendix H) before and after the experience by the experimenter.
 - a) During the test students were given as much time as

they needed. When a student finished a page he put his pencil down and waited till all other students had completed the page. Then they were told to continue on the next page.

- b) If a question was not understood, an attempt was made to clarify it in the light of the student's knowledge.
- c) All ambiguous questions were circled and the new word or words inserted on the master copy.

Results. It was found that a number of the items were not of value for this group.

1. As an example, see Appendix H* on page 5, item 6, "In a democratic group the leader should be told what to do by the members". The concept democratic group did not have meaning.
2. The words, "grouse" rather than "prairie chicken", "biologist" rather than "person working with nature" had to be modified or explained.
3. In scaling the items it was found that the responses were not the same as the responses given by the students of the original test.

Discussion. It was found that the items that had produced scales for the city children did not elicit the same response from

*To consult the test forms in the appendix the reader must take the code number on the left of the margin. These are the numbers used to identify the items for discussion and analysis.

those in the country school. The experimenter, in comparing the results of the first pre-test (Appendix G), and the second pre-test (Appendix H), listed the responses in Table X to XIV. Since those items that scaled on Pre-test I are included as the first items in Pre-test II, the code numbers referring to the items are taken from Pre-test II. As an example, in Table X, "No." indicates the number of the item as found in Pre-test II (Appendix H), under CODE NUMBER. Scores for Pre-test I and those for Pre-test II_{A1} are recorded and underlined to clearly denote those items that are scalable. It was significant that many of the new items clung together and formed a third scale which was placed under No. II_{A2}.

The M.M.R. and C.R. are shown below the scales and comments regarding modifications are shown on the right side of the page.

TABLE X

SCIENCECOMPARISON SCORES - PRE-TEST I
AND PRE-TEST II_A

	N-58	N-62	
No.	I	II _{A1}	II _{A2}
9	28	25	
10	36	38	
11	41	50	
12	49		
13	53	53	
14	40		
15		20	
16		8	
17		41	
18		48	48
19		43	43
20		30	30
21		11	11
22		18	18
MMR	.72	.71	.69
CR	.89	.87	.85

1. It was found when comparing items in Science (Appendix H, p. 1) that the material covered was too scattered.
2. The experimenter concluded that science as an area in itself was too abstract. Evidence indicated this in the application of the second set of items. The items referring to specific concrete areas were those that hung together in a scale.
3. It should be noted that there are now two scales in science, the one II_{A1} utilizing questions (11, 15, 16, 17, 20) (Code) pertaining to birds, fish, and insects. The second scale II_{A2} (18, 19, 20, 21, 22) referring to trees and plants (plants being a term used to include all flowers, grasses, shrubs) (Appendix H).
4. The M.M.R. and C.R. remain relatively similar with a drop in both II_{A1} and II_{A2}.

TABLE XI

COMPARISON SCORES - PRE-TEST I AND PRE-TEST IIA₁SOCIAL STUDIES

	N=58	N=62	
No.	I	IIA ₁	IIA ₂
23	28	47	47
24	40	44	
25	43	56	56
26	48	54	
27	52	55	
28	41	48	48
29		29	
30		36	36
31		39	39
32			
33			
34			
MMR	.73	.71	.69
CR	.86	.85	.84

1. The same response occurred in this scale as with science. The items were not directed toward one psychological objective, but many diverse areas (Appendix H).
2. There is a tendency on the part of this group to score all items high because of their aroused interest in the area.
3. It was decided on the basis of these results to concentrate on two aspects in social studies. The first scale IIA₁ on the early pioneers of the area and pioneer life and the second scale IIA₂ on land forms and topography.
4. The scales were reconstructed using parts of IIA₁, parts of IIA₂, and more items that would give a greater degree of dislike toward the areas (Appendix I).

TABLE XII

COMPARISON SCORES - PRE-TEST I AND PRE-TEST IIACONSERVATION

	N-58	N-62	
No.	I	IIA ₁	
35	27	19	1. The former items in test I were too diversified, more so than in science or social studies (Appendices G and H).
36	43	48	2. The error resulting from a repeat of the former scale made a change necessary.
37	43	15	3. It was decided to take the areas on protection of animals, fish, and birds (37, 40, 41, 46, 48), and modify the items to a certain degree.
38	44	40	4. The next step dealt with questions which had to do with fire protection (43, 44), and see if items calling for a more negative response could be developed (Appendix I).
39	48	34	
40	51	42	
41		33	
42		13	
43		47	
44		45	
45			
46		49	
47			
48		46	
MMR	.71	.70	
CR	.85	.85	

TABLE XIII

COMPARISON SCORES - PRE-TEST I AND PRE-TEST IIAAttitude of Self to Others

No.	N-58	N-62	
	I	II _{A1}	
49	27	37	1. In two scales constructed the items No. 52 and 53 seemed to hang well together; No. 49 also remained consistently low (Appendices G and H).
50	29	35	
51	45	50	
52	51	51	2. After careful perusal of the questions the psychological objects involved appeared to be a) self love, b) selfishness, c) attitude toward other people, d) competition.
53	52	56	
54		22	
55			3. It was decided to build two separate scales, one concerned primarily on values with the psychological object being sharing, and caring for others, and the other based on behavior under competition--defined as maturity in competitive situations (Appendix I).
56		49	
57			
58			
MMR	.72	.75	
CR	.85	.81	

TABLE XIV

COMPARISON SCORES - PRE-TEST I AND PRE-TEST IIA

<u>Attitude to Group</u>			<u>Scores and Scales</u>
No.	N-58	N-62	
59			1. This particular scale might have qualified for a quasi scale. However, it appeared that concepts such as majority and democratic were too difficult to put in the conceptual framework of Grade VI students (Appendix H).
60		46	
61			
62			
63			2. Since Nos. 67 and 68 which have to do with competition scored at both the positive and negative poles of the continuum, it was decided to build a scale around these items, also incorporating some of the items from the scale, Attitude to Self and Others (Appendix I).
64			
65		17	
66		51	
67		52	
68		28	
MMR		.62	
CR		.80	

COMPARISON - PRE-TEST I AND PRE-TEST II_A

Outdoor and Campcraft Skills (Appendices G and H).

1. The items in this scale with the first test produced an M.M.R. of .73, and a C.R. of .83. However, it was found that this scale, like the rest, when retested had an exceptionally large margin of error. The items referred to many different facets of outdoor skills. Another factor in this scale was the lack of real knowledge about the area. Most of the students had not been taught or had not experienced the situations in outdoor skills and crafts. For example, if one has never followed trail signs in the woods, he can only answer in accordance with his imagination. It is highly probable that this was why there was such a discrepancy in the scores from one group to the next.
2. It was decided to restrict outdoor skills to questions about the compass and the building of outdoor shelters. The few items that had to do with an appreciation of doing things in the out-of-doors were transferred to the scale on Aesthetic Appreciation.

Aesthetic Values.

1. The term is defined as the response to the beauty, order, and grandeur of nature. The response evoked, being that of sensitivity, awareness of a Creator or appreciation that cannot be defined.
2. Six of the items scaled thus provide two good combinations

(Appendix H).

a) Items 23, 22, 21, 24, 19 produced an M.M.R. of .70,
C.R. of .86.

b) Items 23, 22, 14, 24, 19 produced an M.M.R. of .69,
C.R. of .84.

3. The items were reduced to nine for the next test

(Appendix I).

Test for Experimental Subjects.

The final form of the test was constructed from the procedures provided in conjunction with TABLES X, XI, XII, XIII, XIV, and the information on Outdoor and Campcraft Skills, and Aesthetic Values. The form of the test is found in Appendix I and this form was used for both the pre- and post-tests on the 1964 and 1965 groups. The conditions for administration of the test were kept as constant as possible in order to standardize the procedure.

Administration of Test 1964

TEST I. The test was administered to the grade VI pupils of Colonel Walker School at 2:00 p.m., June 12, 1964 by the experimenter. The procedure as outlined with the pre-tests was followed with the exception that the students were informed with this directive:

This is an interesting test to find out what students really think they would like or dislike about an outdoor school. It is important that you answer honestly so that we can give you the best possible time at camp. You will not be marked on the results. If you do not understand the meaning of a word raise your hand, and an explanation will be given. Remember, put down what you really feel about all questions. Ready, begin.

TEST II. The post-test was given at 2:20, June 23, 1964, the Monday following the week of outdoor school. The same procedure as outlined for TEST I was used, except that a different introduction to the test was given. Students were told:

Now that camp is over we are planning for next year's program. Since you know what activities at camp you liked and those you disliked, we want you to answer exactly how you feel about the questions. Remember this is not a test and you will not be marked on the results. Ready, begin.

Administration of Test, 1965.

TEST I. The pre-test was administered on Friday, June 12, 1965, at 2:30, and the same directions were given as those in the 1964 test.

TEST II. The post-test was administered on Monday, June 21, 1965, by the home room teacher who explained the procedure outlined for the 1964 post-test.

III. RESEARCH DESIGN SOCIOMETRIC QUESTIONNAIRES

Project 1964

1. To make a sociometric questionnaire with three criteria and five choices of friends. This was to be a combination of Northway and Lindsay (16:24-30) and Gronlund (17:39-56) samples (Appendices J and K).
2. To administer these tests before the project and after the project.
3. Procedure - The students were given the pre-test on June 12, 1964, at 10:00 a.m. They were told the following:
 - a) You have two sheets on your desk. One has all the students' names, each with a corresponding number. The other has three questions concerning whom you like to work with, play with, and sit with in the classroom. You may choose both girls and boys. Print the number, and the surname of your choice in each slot. Make sure you place your number and

name at the top of the sheet. Be certain you cover your choices with the first sheet of paper. No one but the tester is to see the results. Ready, begin.

- b) The students were given adequate time to complete the questionnaire. The papers were then collected and the data were recorded on sociometric tables.
 - c) The post-test was given on June 23, 1964 at 10:00 a.m. The same directions used with the pre-test were given except that the emphasis was directed toward group work in the classroom, not group work in the camp environment (Appendix K).
- 4. Information on the students' mental ability, achievement, and personal life history, was obtained from the home room teacher.
 - 5. Anecdotal records were kept by the counsellors on each student's behavior.
 - 6. The data from the sociometric tables were converted to information as found on Table XLVI and in Figs. 5 to 12.
 - 7. The students were placed in cabin groups according to the home room teacher's judgment. This was primarily a division according to the subjective analysis of the student's physiological age and maturity.

Project 1965.

The same sociometric questionnaires were used for the pre-and post-tests (Appendices J and K).

- 1. Procedure. The tests were administered in the same manner as the 1964 camp with the pre-camp test being given on June 11, 1965, at 10:00 a.m. and post-test on June 21, 1965, at 10:00 a.m.

2. The children were placed in cabin groups according to high or low sociometric status. As a result there were two cabins containing members of high rank and two cabins containing members of low rank.
3. The counsellors were directed to make every effort to keep from isolating any one member of the cabin as a particular malefactor. As leaders they were to be sympathetic but firm, attempting to let the group work out its own problems.
4. Reports were to be made every night and appropriate action taken to effect improvement in the remedial impact of the group.
5. Counsellors were informed of each student's mental ability, academic performance, personality rating, and home environment.
6. A distinct effort was made not to create too much group identification because of the experience in 1964 which generated some inter-group antagonism.
7. Certain steps were taken to give the low groups a good start toward feeling important. The attempt was made to give the camp award for the best results at inspection to the low group. Care was taken to make sure, however, that these students had done a comparable job to other groups.

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CHAPTER V

PRESENTATION AND INTERPRETATION OF DATA

Introduction.

The purpose of the study was to evaluate the attitude change and the social development of Grade VI students from Colonel Walker School in Calgary who attended the 1964 and 1965 pilot projects in school camping. To measure the two aspects of the experience, attitude scales were developed and sociometric questionnaires were constructed. These were then used as instruments to evaluate what occurred in the camp setting.

The first subsidiary problem was to explain the procedure and results of developing Guttman scales. The development produced interesting and useful information for future construction of such scales. Ten scales were constructed (Tables XV to XXIV). The scales as presented show the items in the order used in the 1965 post-test. Items at the top of the scale are those which require the greatest intensity of "feeling toward" to answer, while those at the bottom of the scale are those which require the least intensity. Observation of this pattern in all the scales will reveal an increased degree of "intensity toward" as one proceeds from the bottom item to the top item.

Each scale is shown with the Minimal Marginal Reproducibility (M.M.R.) and the Coefficient of Reproducibility (C.R.) for all testings.

These two factors together determine the value of a scale. A difference of .10 was taken as the minimal criteria of acceptance for a scale. However in those instances where the difference was less than .10 the scales were still considered useful because of the rigorous requirements of the Guttman technique. Further discussion pertinent to this aspect will be found under the discussion on reliability and validity.

I. DISCUSSION OF GUTTMAN SCALES

Psychological Object. In developing items that would have meaning for 12 year old students, the experimenter found that in most instances the psychological object must either be a concrete object of general nature, such as "trees" or identifiable feelings such as joy, sadness, happiness, or anger. For example, it was found in the pre-test scales, that "science" (Table XV) was a term too broad in scope, containing too many variables for the student to accurately respond to with any degree of consistency.

Therefore, in refining the scales many of the psychological objects were simplified and separated. A typical example of how a number of variables produces possible error, even though the scale may have a good M.M.R. and C.R., can be seen in Scale No. II on Animals, Birds, and Insects (Table XVI). A separate scale could be constructed for each of these categories. As it is, the two most positive items in the scale contain the words "Animals", and "Birds", the middle item contains the words "Animals", "Birds", and "Insects", and the last two items only contain the word "Birds". It is conceivable that the reason item three is in the middle is that it contains the word "Insects" to which many people have an aversion. However, it also contains the word "Animals" to which many would respond. The two most negative statements contain hardship in

caring for birds. Close scrutiny of this scale presents the following problem. Since all items do not contain the same three psychological objects the scale suggests a hierarchy of choice for animals, insects, and birds. Those students liking only animals would stop at item 26. Those having an aversion to insects would stop at item 25. In effect what this does is to include the possibility of having students who really do not particularly like birds, only animals and insects, answer items 23, 25, and 26. It is assumed these factors did not affect this scale radically because of the strong M.M.R. and C.R. ratings. However, problems like this suggest a great care be exerted to limit the psychological object to one category.

Reliability. The reliability of the scales is based upon the concept of scalogram analysis. This is a procedure of evaluating sets of statements to determine whether or not they meet the requirements of a particular kind of scale model set forth in detail by L. Guttman (1:139-150). The two indices that determine the relative value of the scale are the Coefficient of Reproducibility and the Minimal Marginal Reproducibility. The C.R. indicates how close the responses to a particular scale, such as Scale No. I (Table XV), fit the predicted response of an ideal scale. If a respondent's answers fit the model then the error would be low and the C.R. would be high. Scale No. I has a 1965 post-test C.R. of .92 indicating that the student's responses to this scale deviate from the predicted response of the model by $1 - .92 = .08$ or 12 errors. Thus the Coefficient of Reproducibility becomes a measure of the degree of accuracy with which the statement responses can be reproduced from knowledge of the total

scores alone. The C.R. rating varied between .81, Scale No. IV (Table XVIII) and .96, Scale No. III (Table XVII). A value of .85 was taken as an accepted criterion for a good scale because the Goodenough technique was used to arrive at the C.R. ratings. Guttman (2:250) has said that when using the Cornell technique the C.R. should not be below .90. Edwards (3) states that in using the Goodenough technique one obtains a C.R. which is never higher and generally lower than that arrived at by the Cornell method. This difference is produced because in the Cornell technique the cutting points between the more and less favourable categories in response can be placed to "minimize error". Edwards (3:184) points out that this may produce a "spurious degree of accuracy". This aspect is eliminated by using the Goodenough technique in which the cutting points are the same as the predicted response in the model scale. In this case, if the observed response deviates from the predicted, it is counted as an error. In this way the coefficient accurately represents the degree of accuracy with which we can reproduce the responses to statements from total scores alone.

Those scales with a C.R. below .85, principally Scales No. IV, VII, and VIII (Tables XVIII, XXI, XXII) are said by Guttman (2:247-280) to constitute quasi-scales. As such the scores of subjects are believed to be determined by one major variable and a number of minor variables which are said to contribute to the error of reproducibility. However, since all of these scales are only a maximum of four points and a minimum of one point away from .85, the experimenter suggests that they can be used with a favourable degree of confidence in the assumption that the process used to arrive at reliability is one of the most rigorous available.

A high C.R. alone is not a sufficient condition to guarantee the scalability of a set of statements since reproducibility of any single statement can never be less than the frequency present in the model category. In a good scale it is deemed necessary (3.) that the response frequencies divide .5 and .5 to make certain the coefficient or reproducibility is not erroneously high. This means that the closer responses to statements cover equally the positive and negative continuum, the better the scale. This value is obtained by taking the proportion of responses in the model category for each statement. These values are then summed and divided by the number of statements, and the resulting value indicates the Minimal Marginal Reproducibility present for a set of statements. The M.M.R. level was set at .75 or lower indicating that a tendency toward more positive items would be accepted.

The M.M.R. value is contingent on the response students make to the items. In cases where the items elicited a response across the whole continuum, the M.M.R. approaches .50. A good example of this is found in Scale No. IV (Table XVIII) where the M.M.R. is .62. Conversely if the response to the items is highly negative, or positive in a direction away from an equal division of .5 and .5 for the response frequencies the M.M.R. becomes overly high. This signifies, for example in Scale No. VIII (Table XXII), where the M.M.R. is .87, that the scale was only discriminating at the top of the continuum. In this particular case the pre-test had a M.M.R. of .62 which changed to an M.M.R. of .84 after the students all became highly

enthused over shelter building. As a result the discriminatory power of the scale was limited, and the possibility of error reduced, giving a somewhat high C.R. of .91.

Even if the power of the scale to discriminate was destroyed the reason for this occurrence is substantial proof that nearly all the students in the 1965 camp become highly enthused over shelter construction.

In conclusion, the reliability of the scales pertains only to the groups measured. However, on the assumption that each group tested was a new sample because of interim experiences which changed the concepts of the group, and since reproducibility remained relatively constant, it is suggested that the scales could be used for other populations. This would be contingent upon the sample from the population responding to the scales in accordance with the predicted responses of the Guttman model. If this occurred then the scales could be used with a high degree of confidence.

Validity. The scales are defined as valid if they measure accurately the material one is concerned with in the experiment. With the exception of one scale, all deal directly with the material presented. Two others are valid only in terms of the expectations of the experimenter. The former Scale No. III (Table XVII) on Fire Protection, presumably was not valid in this situation because all the items referred to the control of fires. The material covered in the camp on fire placed little emphasis on fire prevention but was concerned primarily with the building of fires. The weather was damp and the

building of a camp fire was a major accomplishment. It is possible that a scale constructed to measure interest in the building of a camp fire would have produced a much more valid measurement of change due to the camp experience.

The scales based on personal feelings pose a problem in terms of validity. If the student responds positively to the items in Scale No. VI (Table XX), "Attitude toward Others", he will be accepting the desires of the society as to how he should behave. Therefore, a high score would mean superficially good socialization on the part of the student. On the other hand, if he responds negatively to the items this would possibly indicate an honest self view of one's feelings; a necessary attribute of the non-authoritarian personality. Edwards (4:84-91), in discussing the problems involving personality rating scales, remarked that social desirability will often determine the response made to the items in a scale. If the item is socially desirable and the subject endorses it in self-description, interpretation of his response is complicated. There is no way of really knowing whether the statement is, in fact, descriptive of the subject or whether he simply says that it is because he regards it as a socially desirable characteristic. Similarly if a subject fails to endorse a statement with a low social desirability scale value, he may do so because the statement is not descriptive of him or because he does not choose to acknowledge what he may regard as a socially undesirable characterization. For example, in Scale No. VII (Table XXI), on attitudes under the stress of competition: if a student agrees with the statement "If I win a game I like to tease the losers", he will be

looked upon with disfavour by those around him. If he is a boy this sanction is even more rigid because it is looked upon by western society as the height of poor sportsmanship. However, if the student were honest this may possibly be something he likes to do. In effect it may be good for him to face up to the feeling that he likes to do this, rather than to suppress it because it is socially undesirable behavior.

Both Scales Nos. VI and VII deal with personality characteristics, and as such are slightly different from the other scales. The aspects of social desirability, anxiety, and conformity are apparent in both. However, since the scales were initially constructed to evaluate the outward manifestations of conformity, this will be the aspect measured.

Order of Items. In the construction of Guttman scales, items are usually ascribed an order from positive to negative and left as such for each administration of the test. It was found that when this procedure was used many of the items would not scale. An example of this can be found in Scale No. V (Table XIX). The same order for items was used for the 1964 pre- and post-tests. However, in the 1964 pre-test, item No. 41, "If I could, I would ask a parent to stop the car so we could read road signs about the history of Alberta", became a more positive item than items 42 or 43 making it necessary to change order. In the 1965 pre-test sample Item No. 42 (Table XIX), "I would spend time trying to find a monument about early pioneers of Alberta", was scored strongly negative by 15 students. After spending an afternoon hunting for a real cairn, in memorial to Fathers Scullen and

Doucette for their missionary work among the Stoney Indians, 23 students found this item strongly positive. As a consequence in relation to the other items No. 42 had made too great an increase to scale in the same order as the pre-test. It was therefore placed in a more positive position in the rank order of items, and other items which elicited a less positive response were moved to a more negative position.

It was assumed that items had a different level of intensity for each sample tested. This was due to many factors, a number being: first, that each new sample tested responded to the test items in the light of past experiences and knowledge which varied from group to group; second, the impact of reality experience often clarified and enlarged concepts enabling students to look at the test items, in some instances with a completely new and realistic perspective; and third, material emphasized during outdoor school may not include the area referred to by a particular item or may conversely over emphasize a particular item. Fourth, the item itself may be of poor quality even though it has scaled with the other items with a low degree of error.

Edwards (3:206) stated that:

"neutral" or middle categories of the Thurstone continuum may function as a kind of catch-all in the judging procedure. He provides evidence to indicate that not only the more ambiguous and irrelevant statements tend to be sorted into the middle categories, but also that statements indicating a state of indifference or apathy and ambivalence tend to be placed there.

In addition, there is the possibility that some items changed in intensity because students experienced a deprivation of a certain factor in an item other than the psychological objective. For example, in Scale No. IV (Table XVIII) item 49, "I would go to a movie on the

formation of the plains, foothills, and mountains", ranked in the middle of the scale on the 1964 pre-test and became the most favourable item in the post-test. Was this sudden interest due to a real concern about the formation of plains, foothills, and mountains, or a desire to see a movie after being for sometime without this or television?

It was found that by moving the item position in the scale that the M.M.R. and the C.R. levels improved. Since the items still referred to the same psychological objective, and since they elicited a degree of response from the sample, it was assumed that this procedure, though unique, did not jeopardize the reliability and validity of the scale.

Use of Scales. The ten scales constructed vary from highly typical to near quasi in type. Since the Guttman technique has been used to arrive at reliability it can further be assumed that scales, even though they may be termed quasi, will still give an acceptable indication of intensity toward the various areas tested. The results of the scales immediately raise the question as to what variables actually influence children in making their responses. In the opinion of the experimenter this can only be assessed through a more intensive and long range program of evaluation and analysis.

II. RESULTS OF THE GUTTMAN SCALES

Introduction.

Pertinent data obtained from the administration of the tests were first coded on IBM punch cards. Through the Goodenough technique this material was dichotomized into positive and negative categories.

TABLE XV

SCIENCE CONCEPTS

SCALE NO. I - TREES AND PLANTS

ITEMS

16. I would like to learn all the names of the trees and write a test on them.
17. I am going to memorize and learn as much about trees and plant life as I possibly can.
15. I want to study about trees and plants.
14. I would like to see a movie on how trees and plants grow.
13. I like looking at trees and plants.

MINIMAL MARGINAL REPRODUCIBILITY AND
COEFFICIENT OF REPRODUCIBILITY

Year	Test	M.M.R.	C.R.
1964	Pre-test	.69	.90
	Post-test	.71	.90
1965	Pre-test	.72	.85
	Post-test	.66	.92

TABLE XVI

SCIENCE CONCEPTS

SCALE NO. II - BIRDS, ANIMALS AND INSECTS

ITEMS

21. I would walk more than a mile to watch birds nesting, even if it was cold.
20. I would walk a mile to watch birds nesting.
26. I would like to spend time after school and weekends learning about birds, animals and insects.
25. I would like to spend some of my spare time looking for animals and birds in the woods.
23. I want to study about birds and animals.

MINIMAL MARGINAL REPRODUCIBILITY AND
COEFFICIENT OF REPRODUCIBILITY

Year	Test	M.M.R.	C.R.
1964	Pre-test	.73	.95
	Post-test	.68	.91
1965	Pre-test	.76	.92
	Post-test	.75	.94

TABLE XVII

CONSERVATION

SCALE NO. III - FIRE PROTECTION

ITEMS

36. I would like to spend a week at a special school learning how to fight forest fires.
38. I would like to take a course on fire prevention at school and write a test on it.
33. I would attend a one hour lesson to prevent forest fires.
35. I want to study about fire prevention.
34. I would like to see a movie on how to prevent forest fires.

MINIMAL MARGINAL REPRODUCIBILITY AND
COEFFICIENT OF REPRODUCIBILITY

Year	Test	M.M.R.	C.R.
1964	Pre-test	.71	.87
	Post-test	.67	.90
1965	Pre-test	.74	.90
	Post-test	.69	.96

TABLE XVIII

SOCIAL STUDIES

SCALE NO. IV - TOPOGRAPHY AND GEOGRAPHY

ITEMS

52. I want to be a geologist or person who works with maps and land forms.
51. I would like to spend extra time after school studying topographical maps in order to understand Canada's valleys and mountains.
49. I would go to a movie on the formation of the plains, foothills and mountains.
54. I would like to make models of land forms.
53. I would like to collect pictures of the mountains, valleys, plains, and plateaus of other countries.

MINIMAL MARGINAL REPRODUCIBILITY AND
COEFFICIENT OF REPRODUCIBILITY

Year	Test	M.M.R.	C.R.
1964	Pre-test	.68	.86
	Post-test	.72	.85
1965	Pre-test	.67	.81
	Post-test	.62	.83

TABLE XIX

SOCIAL STUDIES

SCALE NO. V - PIONEER HISTORY

ITEMS

47. I would like to study all there is to know about the early history of Alberta and write a test on it.
43. I would like to read about how people farm in other countries.
42. I would spend time trying to find a monument about early pioneers of Alberta.
41. If I could, I would ask a parent to stop the car so we could read road signs about the history of Alberta.
46. I would like to learn about some of Alberta's early settlers.

MINIMAL MARGINAL REPRODUCIBILITY AND
COEFFICIENT OF REPRODUCIBILITY

Year	Test	M.M.R.	C.R.
1964	Pre-test	.59	.84
	Post-test	.67	.89
1965	Pre-test	.70	.87
	Post-test	.75	.86

TABLE XX

CHARACTER GROWTH

SCALE NO. VI - ATTITUDE TOWARD OTHERS

ITEMS

55. I feel other kids my own age have no right to tell me what to do.
59. I would rather play alone sometimes than with others.
62. In a line up for hot dogs I would try to sneak to the front ahead of the rest.
56. If I found some money I would feel disappointed if I had to share it with others.
60. If I found some chocolate bars I would not share them with anyone.

MINIMAL MARGINAL REPRODUCIBILITY AND
COEFFICIENT OF REPRODUCIBILITY

Year	Test	M.M.R.	C.R.
1964	Pre-test	.79	.90
	Post-test	.74	.88
1965	Pre-test	.79	.88
	Post-test	.82	.91

TABLE XXI

CHARACTER GROWTH

SCALE NO. VII - ATTITUDE IN COMPETITION

ITEMS

- 4. If I lose a game, I sometimes feel angry inside.
- 3. If I don't win, I often find my feelings are hurt.
- 11. If I win a game I expect others to tell me how good I was.
- 5. If I don't win, I always feel angry inside.
- 10. If I win a game I like to tease the losers.

MINIMAL MARGINAL REPRODUCIBILITY AND
COEFFICIENT OF REPRODUCIBILITY

Year	Test	M.M.R.	C.R.
1964	Pre-test	.69	.90
	Post-test	.71	.90
1965	Pre-test	.72	.85
	Post-test	.66	.92

TABLE XXII

OUTDOOR SKILLS

SCALE NO. VIII - SHELTER CONSTRUCTION

ITEMS

16. I would like to build an outdoor shelter even if it was cold.
15. I would like to give a report on outdoor shelters to the class.
17. I would like to sleep in an outdoor shelter even if the mosquitoes and black flies were biting.
24. If I could I would do most of the work in my cabin group in building an outdoor shelter.
13. I would like to learn how to make outdoor shelters.

MINIMAL MARGINAL REPRODUCIBILITY AND
COEFFICIENT OF REPRODUCIBILITY

Year	Test	M.M.R.	C.R.
1964	Pre-test	.66	.83
	Post-test	.66	.84
1965	Pre-test	.62	.82
	Post-test	.87	.91

TABLE XXIII

OUTDOOR SKILLS

SCALE NO. IX - THE COMPASS

ITEMS

21. I would buy a good compass instead of spending my \$6.00 on some other item I wanted.
25. Compass work is so interesting I would gladly write an essay on it for the school paper.
23. After I finish a course on compass work I would like to write a test on my knowledge.
20. I would attend a lesson on compass reading, instead of going to my Saturday show.
19. I would like to learn how to use a compass.

MINIMAL MARGINAL REPRODUCIBILITY AND
COEFFICIENT OF REPRODUCIBILITY

Year	Test	M.M.R.	C.R.
1964	Pre-test	.75	.89
	Post-test	.75	.87
1965	Pre-test	.73	.86
	Post-test	.77	.92

TABLE XXIV

SCALE NO. X - AESTHETIC SENSITIVITY

ITEMS

33. I would rather watch T.V. or a movie than the mystery of an evening sunset.
27. There are really more important things to do than to watch birds and butterflies.
32. I like to just sit watching the clouds drift by and listening to the wind in the pines.
28. A campsite with tin cans lying around makes me want to clean it up.
31. In the morning when the birds begin to sing, and squirrels to chatter, I would like to creep out and watch them.

MINIMAL MARGINAL REPRODUCIBILITY AND
COEFFICIENT OF REPRODUCIBILITY

Year	Test	M.M.R.	C.R.
1964	Pre-test	.69	.86
	Post-test	.68	.92
1965	Pre-test	.69	.86
	Post-test	.84	.88

Depending on the response to each scale a student was then assigned a scale rating on the continuum from 0 to 5. This information was then put in tables. Scale No. I (Table XXV) is used as an example. At the top left hand side is "No." which refers to the code name for the students, and half way down the scale, broken lines stipulate the separations between boys above and girls below. The "Before", and "After" columns contain the rank scores of the pre- and post-tests. The "Difference" column states the positive improvement (+), those who remained the same (o), and those who regressed (-). In addition there is a column for "Outdoor" and "Camping" experience; a '1' implies that the person has camped or been in the country before, while a '2' implies that the person has had little opportunity for either activity. At the bottom of the page totals of the columns are found indicating the amount of positive (+) and negative (-) change made. Careful analysis will reveal that a more accurate measurement of what occurred must be used because of the influence of the pre-test mean on the change scores, and the restrictions of the upper and lower limits of the scales.

As an example, in the scales the overall pre-test means average, is 3 which automatically makes it imperative to obtain a score of 4 or 5 to register any improvement. Further to this if the respondent on the pre-test has chosen a 0 or 5 representing the lower and upper limits of the scale, and after the camping period, feels even more negative, or positive, he/she is forced to stay at this level. In the "Difference" column if one were considering only the raw scores; no change would be in evidence.

a score equal to unity if both are the same. A Ratio Index score above unity denotes a positive change and one below unity means a negative regression.

In the discussion of results consideration is given to the number of scores that stayed at the upper limits; scores of 5 for both pre- and post-tests. This was done on the consideration that if the scale had had an upper limit higher than 5 the value of +S would have likely increased significantly. This is contingent on the percentage of the students who scored at this level and is referred to in this manner in the results.

High pre-test scores as evidenced in the average pre-test mean of 3, caused the experimenter to assess some of the potential causes. It has been stated by Cronbach (6:310-315) and McNeil (7:31-37) that the impact of an enthusiastic adult in whom students can identify creates a like attitude on the part of pupils. In addition the overall preparation by students in the classroom for the venture, may have influenced high pre-test scores.

Students who had never been camping before presumably would have to answer the items on the scales in terms of knowledge gleaned from books, mass media, and people. Responses based on this criteria would possibly be highly imaginative depending more on the attitude of the teacher than on a framework of concepts re-enforced by reality. Conversely students who had reality experience would then be more discriminating in their responses to the items.

An increase or decrease depending upon the pre-test stimulus to students, where they have answered a test on the basis of imagination

rather than experience, is known as "Reality Shock" (8). To find out whether this had some bearing on the high scores for the pre-test, a correlation using Yules Q (9:242-252) was made between pre-camping experience and a positive increase in scores. If the relationship was high the index would climb toward unity. If it was low the index would approach 0 or a negative score. A low score would suggest little relationship between pre-camping experiences and high post test scores. This in turn would mean that reality shock was not affecting the scores of the non pre-campers.

Discussion of Tables.

Scale No. I - Trees and Plants (Table XXV). Both camps produced R.I. scores above unity, 1.64 and 1.37 respectively. The P_i score in the 1964 camp was considerably higher than in the 1965 camp. The scores would have been higher had there been some way of equating the value of those scores which stayed at 5 for both pre- and post-tests. In 1964 since only 12.5 percent were in this category this did not limit the P_i to a great extent, but in the 1965 camp 24.1 percent of the students were in this category. The high percentage at the upper limits justifies the assumption that interest in this material is really better than 1.37 due to the limitations of the scale.

It is difficult to assess why the R.I. score was higher in the 1964 camp than in the 1965 camp. At both camps highly qualified naturalist teachers were present. In 1964 the naturalist was only able to come out after school and on the weekends. In 1965 the naturalist lived at the camp and was available at all times. Having the naturalist available in the setting may have little bearing on attitude

TABLE XXV

COMPARISON OF ATTITUDE SCORES - SCIENCE CONCEPTSSCALE NO. I - TREES AND PLANTS

No.	1964 Before	1964 After	Diff.	Camping Background	1965 Before	1965 After	Diff.	Camping Background
1	3	2	-1	2	5	2	-3	2
2	0	1	+1	2	3	1	-2	1
3					3	5	+2	2
4	5	2	-3	2	5	5	0	1
5	5	2	-3	2	1	1	0	1
6	2	4	+2	1	5	5	0	1
7					2	2	0	1
8	1	2	+1	2	5	5	0	1
9	1	3	+2	1	5	4	-1	1
10	3	0	-3	1	4	4	0	2
11	0	1	+1	2	1	5	+4	1
12	1	0	-1	1	3	3	0	2
13	2	3	+1	1	5	5	0	1
14	0	1	+1	1	1	1	0	1
15	4	3	-1	1	3	2	-1	2
16	4	5	+1	2	5	4	-1	1
17	4	4	0	2	3	1	-2	1
18	3	3	0	1	3	1	-2	1
19	5	4	-1	1	5	5	0	1
20	5	5	0	1	1	1	0	2
21	4	5	+1	1	2	3	+1	1
22	3	2	-1	1	4	5	+1	2
23	5	5	0	2	5	5	0	1
24	4	5	+1	1				1
25	3	5	+2	2	5	3	-2	2
26	5	5	0	1	5	5	0	1
27	3	4	+1	1	4	3	-1	2
28	5	5	0	1	5	5	0	1
29	4	4	0	1	3	3	0	2
30	3	0	-3	2	3	3	0	1
31	5	4	-1	2				
32	2	3	+1	2				
33	2	5	+3	2				
34	3	2	-1	2				
Total	99	99	-19 +19		104	97	-15 +8	
Means	3.1	3.1			3.6	3.3		

$$P_i = .315$$

$$N_i = .192$$

$$R.I. = \frac{.315}{.192} = 1.64$$

$$P_i = .197$$

$$N_i = .144$$

$$R.I. = \frac{.197}{.144} = 1.37$$

change. This being the case, other reasons will have to be probed to resolve why this area did not show the same high change in interest as others. It is suggested that a re-assessment of teaching methods and an analysis of what caused the low interest change be done in the future.

If improvement is not considered, only the level of interest on the post-test, Table XLV shows that at the end of the 1964 camp only 40.6 percent of the students remained highly interested, while at the end of the 1965 camp 48 percent of the students remained highly interested. A low relationship between pre-camping experiences and high positive scores indicated that reality shock had little effect on the results (Table XXVI).

TABLE XXVI

CORRELATION BETWEEN PRE-CAMPING EXPERIENCE
AND POSITIVE SCORES - SCIENCE CONCEPTS

SCALE NO. I - TREES AND PLANTS

CHANGES	CAMPERS	NON-CAMPERS	
CHANGE +	9	9	18
CHANGE -	9	10	19
	18	19	37

Q = +.05

Scale No. II - Birds and Animals (Table XXVII). The R.I. scores of 1.67 and 2.12 show a positive increase of .45 for the 1965 camp over the 1964 camp. It is highly probable that this difference would have been even greater if the 17.2 percent of the students in 1965, who remained at the upper limits could have been measured for positive attitude change.

In the 1965 camp more time was spent looking for birds and their nests. The students with the help of the naturalist found the nests of a phoebe, robin, yellow warbler, bank swallows and a red-tailed hawk. A few animals were seen such as the common red squirrel, beaver, and Richardson's ground squirrels, which helped to stimulate interest about habitat, and living habits of woodland animals.

Reality shock (Table XXVIII) showing a Q score of .05 signified that this factor had little effect on the scale results.

TABLE XXVII

COMPARISON OF ATTITUDE SCORES - SCIENCE

SCALE NO. II - BIRDS AND ANIMALS

No.	1964 Before	1964 After	Diff.	Camping Background	1965 Before	1965 After	Diff.	Camping Background
1	1	1	0	2	3	2	-1	2
2	1	0	-1	2	4	5	+1	1
3					5	5	0	2
4	5	2	-3	2	2	4	+2	1
5	2	3	+1	2	3	3	0	1
6	0	2	+2	1	4	3	-1	1
7					3	4	+1	1
8	0	2	+2	2	5	4	-1	1
9	3	5	+2	1	5	3	-2	1
10	1	1	0	1	1	3	+2	2
11	2	1	-1	2	4	5	+1	1
12	3	3	0	1	1	4	+3	2
13	5	5	0	1	5	5	0	1
14	1	1	0	1	4	1	-3	1
15	2	3	+1	1	3	4	+1	2
16	2	5	+3	2	5	4	-1	1
17	4	5	+1	2	2	1	-1	1
18	2	2	0	1	4	4	0	1
19	5	5	0	1	5	5	0	2
20	3	3	0	1	2	3	+1	1
21	5	3	-2	1	1	1	0	1
22	1	1	0	1	4	3	-1	2
23	5	5	0	2	3	3	0	1
24	3	3	0	1				
25	3	4	+1	2	5	5	0	2
26	3	3	0	1	4	4	0	1
27	3	4	+1	1	4	4	0	2
28	4	3	-1	1	5	5	0	1
29	0	3	+3	1	4	4	0	2
30	2	2	0	2	3	1	-2	1
31	2	0	-2	2				
32	2	2	0	2				
33	5	4	-1	2				
34	5	4	-1	2				
Total	85	90	-12 +17		103	102	-13 +12	
Means	2.71	2.8			3.6	3.5		

$$P_1 = 236$$

$$N_1 = 139$$

$$R.I. = \frac{.236}{.139} = 1.67$$

$$P_1 = .296$$

$$N_1 = .140$$

$$R.I. = \frac{.296}{.140} = 2.12$$

TABLE XXVIII

CORRELATION BETWEEN PRE-CAMPING EXPERIENCE
AND POSITIVE SCORES - SCIENCE CONCEPTS

SCALE NO. II - BIRDS AND ANIMALS

CHANGES	CAMPERS	NON-CAMPERS	
CHANGE +	10	8	18
CHANGE -	9	8	17
	19	16	35

Q = +.05

Scale No. III - Fire Protection (Table XXIX). The R.I. scores of 1.3 and 1.79 reveal a low positive interest level. In 1965 the N_i score of .178 was somewhat higher than the 1964 negative score of .151, but the P_i was .122 higher creating a more positive R.I. score. The non-changeable high 5 scores of 12.5 percent in 1964 and 13.5 percent in 1965, show an almost identical number of responses which may have scored more positively. However, since this percentage is not high the possible change in the R.I. would not be great.

The low R.I. scores were possibly due to the emphasis placed on the importance of being able to successfully build a fire in wet weather. Most of the students were involved directly in this project and seemed to gain a great deal of satisfaction from building a fire, not "putting it out". This test would possibly reveal different results if more fire fighting skills had been taught. A Reality Shock score of

TABLE XXIX

COMPARISON OF ATTITUDE SCORES - CONSERVATION

SCALE NO. III - FIRE PROTECTION

No.	1964 Before	1964 After	Diff.	Camping Background	1965 Before	1965 After	Diff.	Camping Background
1	3	2	-1	2	5	3	-2	2
2	4	2	-2	2	3	3	0	1
3					5	5	0	2
4	4	4	0	2	4	5	+1	1
5	4	3	-1	2	3	0	-3	1
6	3	4	+1	1	3	2	-1	1
7					4	2	-2	1
8	1	0	-1	2	4	5	+1	1
9	3	3	0	1	5	4	-1	1
10	1	0	-1	1	4	5	+1	2
11	1	1	0	2	5	5	0	1
12	1	1	0	1	3	4	+1	2
13	5	5	0	1	5	4	-1	1
14	1	1	0	1	0	0	0	1
15	2	1	-1	1	4	3	-1	2
16	2	5	+3	2	3	1	-2	1
17	4	4	0	2	2	1	-1	1
18	2	2	0	1	2	3	+1	1
19	5	2	-3	1	4	5	+1	1
20	5	5	0	1	5	3	-2	2
21	4	5	+1	1	2	0	-2	1
22	2	2	0	1	5	5	0	2
23	5	4	-1	2	3	4	+1	1
24	4	2	-2	1				
25	3	5	+2	2	4	5	+1	2
26	3	4	+1	1	4	5	+1	1
27	3	4	+1	1	4	3	-1	2
28	5	5	0	1	5	5	0	1
29	5	5	0	1	3	5	+2	2
30	2	3	+1	2	4	5	+1	1
31	4	3	-1	2				
32	2	3	+1	2				
33	2	1	-1	2				
34	4	5	+1	2				
Total	99	96	-15 +12		107	100	-19 +12	
Means	3.1	3.0			3.7	3.5		

$$P_i = .197$$

$$N_i = .151$$

$$R.I. = \frac{.197}{.151} = 1.3$$

$$P_i = .319$$

$$N_i = .178$$

$$R.I. = \frac{.319}{.178} = 1.79$$

-.10 (Table XXX) suggests an inverse situation where those who had camped before had the least positive change in attitude.

TABLE XXX

CORRELATION BETWEEN PREVIOUS CAMPING EXPERIENCES
AND POSITIVE SCORES - CONSERVATION

SCALE NO. III - FIRE PROTECTION

CHANGES	CAMPERS	NON-CAMPERS	
CHANGE +	10	10	20
CHANGE -	11	9	20
TOTAL	21	19	40

$$Q = \underline{-.10}$$

Scale IV - Topography and Geography (Table XXXI). The R.I. scores show a 1.39 index for the 1964 camp and a .37 index for the 1965 camp. A P_i of .202 in 1964 as compared to a P_i of .115 in 1965 suggests a loss of interest, particularly when the N_i of the 1965 camp was .168 greater than in the 1964 camp. The percentage of upper limit scores staying consistent was negligible, negating a possible assumed improvement that would affect the R.I. scores as may have been the case in other instances. The Q score of +.38 can only be considered as an indication that reality shock occurred because of the low value in one cell. Highly reliable inferences can only be made when diagonal cells are both high or low, otherwise Q can be spuriously high. Reasons for the negative regression

TABLE XXXI

COMPARISON OF ATTITUDE SCORES - SOCIAL STUDIES

SCALE NO. IV - TOPOGRAPHY AND GEOGRAPHY

No.	1964 Before	1964 After	Diff.	Camping Background	1965 Before	1965 After	Diff.	Camping Background
1	3	2	-1	2	4	1	-3	2
2	3	2	-1	2	3	2	-1	1
3					5	5	0	2
4	2	2	0	2	4	4	0	1
5	4	3	-1	2	3	0	-3	1
6	2	5	+3	1	2	2	0	1
7					0	1	+1	1
8	1	1	0	2	3	2	-1	1
9	1	2	+1	1	4	3	-1	1
10	2	1	-1	1	5	3	-2	2
11	2	1	-1	2	4	2	-2	1
12	0	0	0	1	4	4	0	2
13	5	4	-1	1	4	5	+1	1
14	1	2	+1	1	0	0	0	1
15	3	3	0	1	4	2	-2	2
16	2	3	+1	2	3	1	-2	1
17	5	3	-2	2	3	0	-3	1
18	1	2	+1	1	3	0	-3	1
19	2	1	-1	1	3	5	+2	1
20	4	4	0	1	3	2	-1	2
21	5	5	0	1	2	2	0	1
22	2	2	0	1	3	2	-1	2
23	4	3	-1	2	4	3	-1	1
24	3	4	+1	1				1
25	2	2	0	2	4	4	0	2
26	3	3	0	1	3	3	0	1
27	3	3	0	1	4	2	-2	2
28	5	5	0	1	4	5	+1	1
29	0	3	+3	1	3	4	+1	2
30	2	4	+2	2	2	1	-1	1
31	1	1	0	2				
32	1	3	+2	2				
33	1	3	+2	2				
34	1	0	-1	2				
Total	76	82	-11 +17		93	70	-29 +6	
Means	2.4	2.6			3.2	2.4		

$$P_i = .202$$

$$N_i = .145$$

$$R.I. = \frac{.202}{.145} = 1.39$$

$$P_i = .115$$

$$N_i = .313$$

$$R.I. = \frac{.115}{.313} = .37$$

are contradictory because in the 1964 camp the topography and effect of wind, rain and erosion was explained indoors with a map and lecture. In 1965, trying to use the environment effectively, the students were taken to the Elbow River to actually see how it was affecting the land contours. It is possible that since only one lecture was given on this area that the students felt that it was not important.

TABLE XXXII

CORRELATION BETWEEN PREVIOUS CAMPING EXPERIENCES
AND POSITIVE SCORES - SOCIAL STUDIES

SCALE NO. IV - TOPOGRAPHY AND GEOGRAPHY

CHANGES	CAMPERS	NON-CAMPERS	
CHANGE +	9	4	13
CHANGE -	13	13	26
TOTAL	22	17	39

$$Q = \underline{+.38}$$

Scale No. V - Pioneer History (Table XXXIII). The R. I. scores of 3.69 and 13.20 signify that students were highly interested in pioneer history. The non-changeable upper limits scores in the 1964 camp were 15.5 percent compared to only 7 percent in the 1965 camp. From this it can be assumed that the R. I. score of 3.69 was supported by 15.5 percent of the students who had scored at the upper limits.

TABLE XXXIII

COMPARISON OF ATTITUDE SCORES - SOCIAL STUDIES

SCALE NO. V - PIONEER HISTORY

No.	1964 Before	1964 After	Diff.	Camping Background	1965 Before	1965 After	Diff.	Camping Background
1	3	4	+1	2	4	3	-1	2
2	0	1	+1	2	3	3	0	1
3					2	5	+3	2
4	2	0	-2	2	4	5	+1	1
5	2	1	-1	2	1	1	0	1
6	4	5	+1	1	2	4	+2	1
7					1	1	0	1
8	1	3	+2	2	1	4	+3	1
9	0	1	+1	1	4	3	-1	1
10	2	1	-1	1	4	4	0	2
11	0	1	+1	2	4	5	+1	1
12	0	0	0	1	4	4	0	2
13	5	5	0	1	4	5	+1	1
14	0	0	0	1	0	1	+1	1
15	3	2	-1	1	5	5	0	2
16	3	5	+2	2	4	3	-1	1
17	3	4	+1	2	2	3	+1	1
18	3	3	0	1	2	3	+1	1
19	4	4	0	1	3	5	+2	1
20	5	5	0	1	2	2	0	2
21	5	5	0	1	2	2	0	1
22	3	2	-1	1	3	5	+2	2
23	5	4	-1	2	4	5	+1	1
24	3	5	+2	1				1
25	2	3	+1	2	4	5	+1	2
26	1	4	+3	1	2	5	+3	1
27	4	4	0	1	3	5	+2	2
28	5	5	0	1	5	5	0	1
29	2	4	+2	1	3	5	+2	2
30	0	4	+4	2	2	4	+2	1
31	3	4	+1	2				
32	0	1	+1	2				
33	2	4	+2	2				
34	5	5	0	2				
Total	80	99	-7 +26		84	110	-3 +29	
Means	2.5	3.1			2.9	3.8		

$$P_i = .325$$

$$N_i = .088$$

$$R.I. = \frac{.325}{.088} = 3.69$$

$$P_i = .476$$

$$N_i = .036$$

$$R.I. = \frac{.476}{.036} = 13.20$$

The Q score of $-.39$ (Table XXXIV) suggests that this type of experience had little bearing on contact with the out-of-doors. As explained previously the Q score in this correlation is overly low because of the very low score in one cell. However the trend is such that it is safe to state that no correlation exists.

The high R.I. scores are likely the result of the visit to the Robinson's pioneer home, with its many interesting artifacts, stories, paintings of Indian life, the hike to the cairn in memory of Fathers Scullen and Doucette, and the candlelight worship service where Rev. Bob Wallace spoke on the famous pioneers of Alberta. Since there is some mention of farming in one item, the visit to Barnes' Dairy could be associated with this area.

TABLE XXXIV

CORRELATION BETWEEN PREVIOUS CAMPING EXPERIENCES
AND POSITIVE SCORES - SOCIAL STUDIES

SCALE NO. V - PIONEER HISTORY

CHANGES	CAMPERS	NON-CAMPERS	
CHANGE +	14	16	30
CHANGE -	6	3	9
	20	19	39

$Q = \underline{-.39}$

Scale VI - Attitude Toward Others (Table XXXV). The R.I.

scores show a fair improvement in attitude of 1.66 and 2.12. Comparison of P_i and N_i indexes reveal that in 1964 there was a higher positive score by .059 than in 1965 but the negative score was also higher by .076 creating a lower R.I. score. The fact that even though students had few scores at the outer limits of the scales, that they scored the same for pre- and post-tests across the whole continuum, signifies that personality patterns are firmly established and will not vary to any marked degree in a different physical setting. The percentage of the students that did not change position on the scale in 1964 was 37.5 percent, while in 1965, 62 percent remained constant. This observation is supported in Table XXXVI by a low Q score of -.10 negating the effect of reality shock in this area.

TABLE XXXV

COMPARISON OF ATTITUDE SCORES - SOCIAL DEVELOPMENT

SCALE NO. VI - ATTITUDE TOWARD OTHERS

No.	1964 Before	1964 After	Diff.	Camping Background	1965 Before	1965 After	Diff.	Camping Background
1	2	4	+2	2	4	4	0	2
2	4	4	0	2	3	4	+1	1
3					5	5	0	2
4	5	2	-3	2	3	3	0	1
5	3	3	0	2	3	3	0	1
6	0	3	+3	1	5	5	0	1
7					4	4	0	1
8	0	0	0	2	3	3	0	1
9	3	4	+1	1	3	3	0	1
10	2	0	-2	1	3	3	0	2
11	0	1	+1	2	4	2	-2	1
12	1	0	-1	1	3	3	0	2
13	5	3	-2	1	5	5	0	1
14	3	1	-2	1	2	2	0	1
15	2	2	0	1	4	3	-1	2
16	2	3	+1	2	4	5	+1	1
17	4	3	-1	2	3	4	+1	1
18	3	3	0	1	5	3	-2	1
19	4	4	0	1	1	4	+3	1
20	5	4	-1	1	3	3	0	2
21	4	5	+1	1	2	2	0	1
22	3	4	+1	1	2	4	+2	2
23	4	2	-2	2	4	4	0	1
24	4	4	0					
25	5	5	0	2	4	4	0	2
26	5	5	0	1	4	4	0	1
27	4	4	0	1	4	3	-1	2
28	4	4	0	1	4	3	-1	1
29	4	4	0	1	3	3	0	2
30	3	4	+1	2	5	4	-1	1
31	3	4	+1	2				
32	3	4	+1	2				
33	5	4	-1	2				
34	3	4	+1	2				
Total	102	101	-15 +14		102	102	-8 +8	
Means	3.2	3.2			3.5	3.5		

$$P_i = .243$$

$$N_i = .146$$

$$R.I. = \frac{.243}{.146} = 1.66$$

$$P_i = .167$$

$$N_i = .079$$

$$R.I. = \frac{.167}{.079} = 2.12$$

TABLE XXXVICORRELATION BETWEEN PREVIOUS CAMPING EXPERIENCES
AND POSITIVE SCORES - SOCIAL DEVELOPMENTSCALE NO. VI - ATTITUDE TOWARD OTHERS

CHANGES	CAMPER	NON-CAMPER	
CHANGE +	8	7	15
CHANGE -	7	5	12
	15	12	27

$$Q = \underline{-.10}$$

Scale VII - Attitude in Competition (Table XXXVII). The R.I. scores show a substantial increase in both camps. In the 1964 camp N_i was .055 larger than in the 1965 camp and the P_i was .104 smaller producing a lower R.I. than in the 1965 camp. The upper limit scores were high; with 25 percent remaining constant in 1964 and 31 percent remaining constant in 1965. This high percentage of students with scores at the upper limit may suggest that students are highly sensitive in competition as to the expectations of society. It is significant that in the 1965 camp 21 percent of the boys were in this category. Since competition in the camp was limited, it is possible this stimulus was not great enough to cause an outstanding change in the scores.

Reality shock as indicated by a Q score of -.07 (Table XXXVII) has little bearing on the scores.

TABLE XXXVII

COMPARISON OF ATTITUDE SCORES - SOCIAL DEVELOPMENT

SCALE NO. VII - ATTITUDE IN COMPETITION

No.	1964 Before	1964 After	Diff.	Camping Background	1965 Before	1965 After	Diff.	Camping Background
1	5	5	0	2	3	5	+2	2
2	4	5	+1	2	3	4	+1	1
3					5	5	0	2
4	5	4	-1	2	2	3	+1	1
5	5	3	-2	2	1	4	+3	1
6	4	5	+1	1	4	4	0	1
7					5	5	0	1
8	1	3	+2	2	5	5	0	1
9	5	4	-1	1	2	4	+2	1
10	1	0	-1	1	3	3	0	2
11	1	0	-1	2	5	5	0	1
12	2	1	-1	1	5	5	0	2
13	0	2	+2	1	5	5	0	1
14	2	4	+2	1	3	2	-1	1
15	4	5	+1	1	4	3	-1	2
16	3	3	0	2	5	5	0	1
17	5	4	-1	2	4	5	+1	1
18	4	3	-1	1	4	2	-2	1
19	5	5	0	1	3	3	0	1
20	5	5	0	1	3	5	+2	2
21	5	5	0	1	2	4	+2	1
22	2	1	-1	1	2	2	0	2
23	5	5	0	2	5	5	0	1
24	5	3	-2	1				1
25	5	4	-1	2	5	5	0	2
26	5	5	0	1	4	4	0	1
27	5	5	0	1	5	3	-2	2
28	4	4	0	1	3	2	-1	1
29	2	2	0	1	4	5	+1	2
30	3	4	+1	2	4	4	0	1
31	4	5	+1	2				
32	2	4	+2	2				
33	5	5	0	2				
34	5	4	-1	2				
Total	116	115	-14 +13		108	116	-7 +15	
Mean	3.6	3.6			3.7	4.00		

$$P_i = .294$$

$$N_i = .120$$

$$R.I. = \frac{.294}{.120} = 2.45$$

$$P_i = .398$$

$$N_i = .065$$

$$R.I. = \frac{.398}{.065} = 6.12$$

TABLE XXXVIII

CORRELATION BETWEEN PREVIOUS CAMPING EXPERIENCES
AND POSITIVE SCORES - SOCIAL DEVELOPMENT

SCALE NO. VII - ATTITUDE IN COMPETITION

CHANGES	CAMPERS	NON-CAMPERS	
CHANGE +	8	8	16
CHANGE -	8	7	15
TOTAL	16	15	31

$$Q = \underline{-.07}$$

Scale VIII - Shelter Construction (Table XXXIX). The R.I. scores in both camps were high with the 1964 camp having a score of 4.61 and the 1965 camp one of 23.20. The upper limit scores were almost identical with scores of 9.4 percent and 10 percent indicating this factor did not affect a difference in the interest change. The P_i score was higher by .077 for the 1965 camp and the N_i score for the 1964 camp was .080 greater than that for the 1965 camp. This difference in R.I. scores is possibly due to an improvement in the teaching of the subject. In the first year the camp was divided into four groups including both sexes. Each group was to follow train signs through the bush to find their allocated spot for the building of an outdoor shelter. One group failed to follow the signs and did not build a shelter. The other three groups each found their allocated spot and built a pre-designed shelter. The activity was rushed

TABLE XXXIX

COMPARISON OF ATTITUDE SCORES - OUTDOOR SKILLS

SCALE NO. VIII - SHELTER CONSTRUCTION

No.	1964 Before	1964 After	Diff.	Camping Background	1965 Before	1965 After	Diff.	Camping Background
1	3	3	0	2	2	2	0	2
2	4	0	-4	2	3	4	+1	1
3					5	5	0	2
4	4	4	0	2	4	4	0	1
5	1	1	0	2	4	5	+1	1
6	4	5	+1	1	3	3	0	1
7					3	5	+2	1
8	0	3	+3	2	5	5	0	1
9	0	4	+4	1	4	2	-2	1
10	3	5	+2	1	3	3	0	2
11	1	1	0	2	3	5	+2	1
12	1	2	+1	1	2	4	+2	2
13	5	4	-1	1	3	5	+2	1
14	2	3	+1	1	1	3	+2	1
15	1	2	+1	1	4	4	0	2
16	2	5	+3	2	3	5	+2	1
17	3	5	+2	2	2	2	0	1
18	1	2	+1	1	1	4	+3	1
19	5	5	0	1	4	5	+1	1
20	3	3	0	1	1	5	+4	2
21	5	5	0	1	1	2	+1	1
22	3	3	0	1	3	4	+1	2
23	4	5	+1	2	2	4	+2	1
24	2	4	+2	1				
25	1	4	+3	2	3	5	+2	2
26	2	5	+3	1	1	3	+2	1
27	5	5	0	1	4	5	+1	2
28	3	4	+1	1	5	5	0	1
29	1	5	+4	1	4	5	+1	2
30	2	5	+3	2	1	3	+2	1
31	1	1	0	2				
32	0	2	+2	2				
33	3	0	-3	2				
34	2	4	+2	2				
Total	77	109	-8 +40	17	84	116	-2 +34	
Mean	2.4	3.4			2.9	4.00		

$P_i = .480$
 $N_i = .104$
 $R.I. = 4.61$

$P_i = .557$
 $N_i = .024$
 $R.I. = 23.20$

because of the oncoming darkness and the shelters had to be completed the following day. These factors may have caused a negative reaction on the part of some.

In 1965 the shelter building activity was combined with a hike to the cairn, after which the shelters were built by the cabin groups. Each cabin was given plastic sheeting, string, and an axe. They were then told about the different types of shelters and it was suggested they use their own initiative to build whatever type of shelter they wished. Adequate time was given for the project and all the groups appeared to be enthused over their activity.

A high level of reality shock was indicated (Table XL) by a Q score of $+0.54$ indicating that the pre-campers scored realistically on the pre-tests and thus made large gains on the post-tests while the non pre-campers scored high on the pre-tests and dropped to a realistic viewpoint on the post-tests. This evidence can only be taken as a trend, because of the two parallel low cells making Q somewhat high.

TABLE XL

CORRELATION BETWEEN PREVIOUS CAMPING EXPERIENCES
AND POSITIVE SCORES - OUTDOOR SKILLS

SCALE NO. VIII - SHELTER CONSTRUCTION

CHANGES	CAMPERS	NON-CAMPERS	
CHANGE +	24	14	38
CHANGE -	1	2	3
	25	16	41

$Q = +0.54$

Scale IX - Compass Use (Table XLI). The R.I. scores of 2.38 and 44.10 show a much greater spread between this activity in the 1964 and 1965 camps than between the two camps in shelter building. Outer limit scores in both activities are almost nil indicating considerable change in attitude. Both P_i scores are high but the N_i reveals a difference of .135 making the R.I. of the 1964 camp low. The difference may be due to more adverse circumstances in weather, and compass trail locations in 1964. In 1965 the weather was improved, the compass trails were planned and marked more clearly.

The Q score of .54 (Table XLII) shows that similarly to Table XL the non-pre-campers scored too high on the pre-test while the pre-campers scored more conservatively on the pre-test and thus made high gains on the post-test.

TABLE XLI

COMPARISON OF ATTITUDE SCORES - OUTDOOR SKILLS

SCALE NO. IX - COMPASS USE

No.	1964 Before	1964 After	Diff.	Camping Background	1965 Before	1965 After	Diff.	Camping Background
1	3	4	+1	2	1	1	0	2
2	2	5	+3	2	0	4	+4	1
3					4	5	+1	2
4	4	1	-3	2	3	4	+1	1
5	1	1	0	2	2	5	+3	1
6	1	5	+4	1	4	4	0	1
7					2	1	-1	1
8	1	1	0		3	5	+2	1
9	1	3	+2	2	3	4	+1	1
10	2	2	0	1	2	5	+3	2
11	1	2	+1	1	3	5	+2	1
12	1	1	0	2	3	3	0	2
13	5	4	-1	1	4	5	+1	1
14	0	1	+1	1	0	1	+1	1
15	2	1	-1	1	1	5	+4	2
16	1	4	+3	1	3	5	+2	1
17	3	2	-1	2	0	1	+1	1
18	2	1	-1	2	2	3	+1	1
19	3	5	+2	1	4	5	+1	1
20	5	5	0	1	2	4	+2	2
21	2	5	+3	1	1	3	+2	1
22	1	1	0	1	3	5	+2	2
23	4	5	+1	1	5	5	0	1
24	4	4	0	2				
25	2	5	+3	1	3	3	0	2
26	1	3	+2	2	2	5	+3	1
27	2	2	0	1	2	5	+3	2
28	5	3	-2	1	3	5	+2	1
29	2	4	+2	1	3	5	+2	2
30	0	1	+1	1	0	2	+2	1
31	3	3	0	2				
32	1	2	+1	2				
33	1	4	+3	2				
34	1	0	-1	2				
Total	67	90	-10 +33		68	113	-1 +46	
Mean	2.1	2.8			2.4	3.9		

$$P_i = .355$$

$$N_i = .149$$

$$R.I. = \frac{.355}{.149} = 2.38$$

$$P_i = .618$$

$$N_i = .014$$

$$R.I. = \frac{.618}{.014} = 44.10$$

TABLE XLII

CORRELATION BETWEEN PREVIOUS CAMPING EXPERIENCES
AND POSITIVE SCORES - OUTDOOR SKILLS

SCALE NO. IX - COMPASS USE

CHANGES	CAMPERS	NON-CAMPERS	
CHANGE +	25	12	37
CHANGE -	4	5	9
	29	17	46

$$Q = +.54$$

Scale No. X - Aesthetic Sensitivity (Table XLIII). The R.I. scores were 2.40 in 1964, and 29.10 in 1965, denoting a large gain in interest in the second camp. At the same time the upper level score for the 1965 camp was 20.6 percent substantiating a strongly favourable attitude level. Slight reality shock was indicated by a Q of +.24 (Table XLIV) revealing a strong relationship between pre-camping activity and an improved sensitivity level to occurrences in the world of nature.

TABLE XLIII

COMPARISON OF ATTITUDE SCORES

SCALE NO. X - AESTHETIC SENSITIVITY

No.	1964 Before	1964 After	Diff.	Camping Background	1965 Before	1965 After	Diff.	Camping Background
1	5	5	0	2	2	3	+1	2
2	2	2	0	2	3	4	+1	1
3					4	5	+1	2
4	4	0	-4	2	2	3	+1	1
5	4	2	-3	2	1	3	+2	1
6	4	3	-1	1	2	3	+1	1
7					3	5	+2	1
8	0	1	+1	2	5	5	0	1
9	2	2	0	1	1	3	+2	1
10	2	3	+1	1	3	3	0	2
11	0	0	0	2	4	5	+1	1
12	0	3	+3	1	3	4	+1	2
13	4	5	+1	1	4	5	+1	1
14	0	0	0	1	1	2	+1	1
15	3	3	0	1	4	5	+1	2
16	3	3	0	2	5	4	-1	1
17	4	3	-1	2	1	4	+3	1
18	4	3	-1	1	5	5	0	1
19	3	4	+1	1	4	5	+1	1
20	4	4	0	1	3	5	+2	2
21	5	5	0	1	4	3	-1	1
22	3	2	-1	1	4	5	+1	2
23	3	4	+1	2	5	5	0	1
24	3	5	+2	1				
25	4	4	0	2	4	4	0	2
26	3	5	+2	1	4	5	+1	1
27	5	4	-1	1	5	5	0	2
28	4	4	0	1	5	5	0	1
29	5	5	0	1	5	5	0	2
30	2	4	+2	2	4	4	0	1
31	3	3	0	2				
32	2	3	+1	2				
33	5	5	0	2				
34	4	3	-1	2				
Total	99	102	-12 +15		100	122	-2 +24	
Mean	3.1	3.2			3.5	4.2		

$$P_i = .247$$

$$N_i = .121$$

$$R.I. = \frac{.247}{.121} = 2.40$$

$$P_i = .552$$

$$N_i = .019$$

$$R.I. = \frac{.552}{.019} = 29.10$$

TABLE XLIV

CORRELATION BETWEEN PREVIOUS CAMPING EXPERIENCES
AND POSITIVE SCORESSCALE NO. X - AESTHETIC VALUES

CHANGES	CAMPER	NON-CAMPER	
CHANGE +	18	9	27
CHANGE -	6	5	11
TOTAL	24	14	38

$$Q = \underline{+.24}$$

Since the scale is based on a wholistic response to the impact of the beauty and grandeur of nature, possibly all those teachers who took time with their students to stop, look, and listen, helped create the mood which stimulated the positive responses to the setting.

Comparisons of Post-Test Score Results. The results in Tables XXV to XLIV are concerned primarily with the interest change during the camp period. To show that interest still remained high even though there was little change in interest between pre- and post-tests, ranks 4 and 5 were tabulated (Table XLV).

In Table XLV the percentages show the number of students in the combined rank (4 & 5) for each test. As an example, in the 1964 Scale I, 7.7 percent of the boys were at this level and 73.6 percent of the girls. In 1965 in contrast, 56 percent of the boys and 40 percent of the girls were in this category.

The Roman numerals across the top of the table signify the scale. Under "Mean" the average means for all the scales are recorded. In 1964, 24.6 percent of the boys were highly interested in camp activities whereas the girls demonstrated a high interest with a mean of 66.3 percent. In 1965, 58.4 percent of the boys and 59.3 percent of the girls, signified that a large number of students of both sexes had a high interest in the outdoor school activities. This may have been due to the overall effect of teacher enthusiasm in the classroom, the experience in the outdoor school, and the interest students have in the natural world.

TABLE XLV

COMPARISON OF HIGH POST TEST SCORES

Year	Scale No.	I	II	III	IV	V	VI	VII	VIII	IX	X	Mean
1964	BOYS No. 13	7.7%	15.4%	23%	15.4%	23%	23%	54%	38.4%	31.1%	15.4%	24.6
	GIRLS No. 19	73.6%	42%	58%	79%	79%	79%	73.6%	68.5%	47.5%	63%	66.3
1965	BOYS No. 14	56%	56%	56%	56%	56%	42.8%	78.5%	64.3%	71.4%	50%	58.4
	GIRLS No. 15	40%	60%	53.4%	26.4%	66.7%	53.4%	60%	73.4%	66.7%	93.4%	59.3

The lowest percentage of interest for boys is found in response to Scale No. I pertaining to trees and plants. Only 7.7 percent of the 1964 boys signified a strong interest compared to 73.6 percent of the girls. One possible cause for this low interest score would be that the boys felt they could not identify in a female naturalist. The high boys' score of 56 percent in 1965 may have some relationship to this factor. In the 1965 camp natural science was taught by both a woman and a man. However, since the 1965 boys as a whole scored 23.9 percent higher on their mean score than those in 1964 camp, other variables may be present.

It is of interest that even though in Scale No. IV, Topography and Geography, the attitude change regressed during the 1965 camp, there were still 56 percent of the boys highly interested in this activity. It is also of interest that 79 percent of the girls in the 1964 camp could be highly in favour of this material and in the 1965 camp the number dropped to 26.4 percent. This regression in interest in the 1965 camp was supported by the R.I. of .37 for Scale IV (Table XXXI). Reasons for this occurrence could be attributed to: first, a low initial interest in the area by this particular group of girls; second, the short period of time given to the teaching of the material; and last, the method used to teach the material. In the first camp this material was initially taught by a lecture, with the use of a map of the area. In the second camp the children were taken to a bridge over the Elbow River, where they could see the effects of land erosion by water. In retrospect it might have been difficult for the girls to hear the instructor above the noise of the river.

Subjective techniques could possibly find out more adequately the causes for a low level of interest in this area.

The response to the Scale No. VII on competition, was 54 percent in the 1964 camp. This score was the highest demonstrated in all the scales by these boys. The experimenter proposes the following reason for this response in this area alone: It may be that competition was the only area threatening enough to bring about a forceful response from the students. Any boy not strongly against the scale items would be violating the code of "good sportsmanship" as defined by the society as a socially desirable trait.

In contrast to what is generally thought true, girls liked shelter building and compass work better than boys. In 1964, over 30.1 percent demonstrated a strong interest in shelter building and 16.4 percent showed a strong interest in compass work. In 1965, the girls were again the most interested in shelter building, but fell behind the boys by 4.7 percent in the use of the compass.

A dramatic score of 93.1 percent (almost twice that obtained by the boys in 1965) clearly indicates that girls are highly sensitive to the impact of nature.

III. SOCIOMETRIC RESULTS

Introduction.

The second purpose of the research was to measure certain aspects of social development through using the dynamics of the group process. Since one of the goals of education is to develop social skills in students that they may effectively deal with others, it was hypothesized that through the small group process the isolates and neglectees would find a better self image, and be drawn into strong friendship patterns. The information on the attitude scales (Tables XXXV and XXXVII), No. VI - Attitude Toward Others, and Scale No. VII - Attitude Under Stress of Competition, were used to see whether those students of high constellation had a high correlation to negative or positive scores.

Analyses of scores on Tables XLVI and XLVII show which cabin groups and individuals gained or lost choices in the sociometric questionnaires. Their rank is recorded in relationship to the others in the camp on the basis of sex lines. Table XLVIII compares the mutual choices of all cabin groups and depicts the relationship in terms of a percentage increase. Table XLIX indicates where scores were given due to cross-sex choice. The results on Tables I, LI, LII, signify a relationship between students' social rank and scores on Scale VI - Attitude Toward Others, and Scale VII - Attitude Under Stress of Competition.

All cabin groups are charted in Figures 5 to 16 by a circle and number indicating their name. The parallel lines tell where each camper ranks in relationship to all the children in the camp. The

cabin group bonding is depicted by broken lines for a one way choice and a solid line for a two way choice. The value of the choice is placed in a little circle next to the person making the choice. Only the first three choices are used from the questionnaires on the findings of Gronlund(10:97-109) which states that stability of choice follows the pattern: 72 percent first choice, 59 percent second choice, and 52 percent for third.

In analyzing the sociograms one needs to keep the criteria of Whitaker (11:152-160) in mind.

1. The fewer the isolates in a group the better.
2. The higher the number of reciprocated choices the better.
3. As the group matures the number of over chosen decreases and the choices should be shared by all.
4. The acceptance curve takes the form of a normal curve.

Results

Ingroup Friendship Growth - Hypothesis No. 1. The first hypothesis states that when students are placed together in groups they will develop stronger friendship bonds with those in the group, than with those outside the group. In the 1964 camp this hypothesis was proven to be false in the majority of cabins. It can be observed in the data, that with the exception of Group III (Figs. 9 and 10) that on the pre-test the stars had at least one mutual choice with one or more of the group but when the post-test was given they had dropped their reciprocal choices. If they still had a reciprocal choice for a cabin member it was usually for one who had risen in rank. As an example, No. 32 (Figs. 5 and 6), had one mutual choice on the pre-test

but had none on the post-test. In Group II (Figs. 7 and 8) No. 24 had three mutual choices and one 1-way choice on the pre-test, but only two mutual choices on the post-test. One of these choices was for No. 27, who had risen in camp rank from 16 to 35 choices, and the other for No. 29 who was the third most popular person in the group.

In Group IV (Figs. 11 and 12), No. 11 had two mutual choices in the pre-test, but by the post-test he had dropped these, and had chosen No. 14, who had risen in camp rank by 7 choices.

Like the stars, most campers without previous mutual choices also gave their choices to those in other groups. The students in Group I (Figs. 5 and 6) who were mutual friends on the same level stayed firm in their choice; Nos. 19, 20, 25, 28, 31. In Group II (Figs. 7 and 8) Nos. 17, 30, and 34, established new bonds. In Group III (Figs. 9 and 10), the star dropped in camp popularity, but cemented bonds within the group. No. 7 kept a mutual friendship with No. 8 and established others with Nos. 3 and 4, while No. 4 established a bond with No. 5. Group IV (Figs. 11 and 12) failed to establish any mutual choices at the lower levels. The star, No. 11, established a mutual bond with No. 14 otherwise the group feeling was nearly negligible.

Sherif and Sherif (12:545-570), in their studies on group dynamics using the camp setting, found the following factors needed to exist before a group developed cohesion:

1. All must share stands taken by the group.
2. One must stay within the bonds drawn for attitude and behavior that count for the group.
3. All must be willing to reject positions and people rejected by the group.

The Sherif and Sherif (12) studies revealed that group cohesion was further generated by isolation of a group, except when competing with others, and providing opportunities for a group to solve problems for its own welfare. Further to these basic points the experiment was conducted for at least three weeks, if not more, in length.

Hypothesis No. 2 states that if students were placed in the cabin groups according to social rank, this would be a strong factor in establishing group cohesion.

Since Outdoor School could only fulfill in a small measure the three requirements as outlined by Sherif and Sherif (12:545-570) for group cohesion, it was decided that some other factor might help. This was to locate the students in cabins according to their social rank. Those of high constellation were placed together and those of low constellation were placed together (Figs. 13 and 15). The results of this social structure improved to a marked degree the cohesion within all cabin groups, thus supporting Hypothesis No. 1 and substantiating Hypothesis No. 2.

Table XLVI shows that all cabins in 1964 lost or gained choices from members in other cabins. Group III lost 20 choices, Group IV gained 12, Group I lost 25, and Group II gained 33, making a total of 45 choices changing cabins. In contrast in 1965 (Table XLVII) Group III lost 7 choices, Group IV lost 16 choices, Group I gained 10 choices, and Group II gained 13 choices, making a total of 23 choices changing cabins.

TABLE XLVI

SOCIOMETRIC STATUS OF STUDENTS AT THE 1964 CAMP SUBDIVIDED INTO CABIN GROUPS

Group III and IV

Group I & II

Boy's Name	June 12, 1964	Rank	June 23, 1964	Rank	Change in Status	Girl's Name	June 12, 1964	Rank	June 23, 1964	Rank	Change in Status
1	14	9	7	11	-7	16	0	18	1	18	+1
2	1	15	0	15	-1	19	3	16	3	15	0
3	30	2	19	6	-11	20	15	5	15	5	0
4	26	4	25	4	-1	22	13	9	7	11	-6
5	15	8	21	5	+6	25	6	14	6	12	0
7	29	3	19	6	-10	26	3	16	2	16	-1
8	24	5	28	3	+4	28	14	8	5	13	-9
9	5	11	5	12	0	31	16	4	11	8	-5
						32	38	1	38	2	0
						33	16	4	11	8	-5
Choices gained Choices lost Subtotal						Choices gained Choices lost Subtotal					
+10 -30 -20						+1 -26 -25					
6	13	10	15	8	+2	17	4	15	4	14	0
10	5	11	4	13	-1	18	9	12	2	16	-7
11	45	1	50	1	+5	21	12	10	12	7	0
12	3	14	1	14	-2	23	21	3	13	6	-8
13	5	11	12	9	+7	24	34	2	54	1	+20
14	24	6	31	2	+7	27	16	4	35	3	+19
15	16	7	10	10	-6	29	7	13	15	5	+8
						30	12	10	10	10	-2
						34	16	4	19	4	+3
Choices gained Choices lost Subtotal						Choices gained Choices lost Subtotal					
+21 -9 +12						+50 -17 +33					
Total						Total					
-8						+8					

TABLE XLVII

SOCIOMETRIC STATUS OF STUDENTS AT THE 1965 CAMP SUBDIVIDED INTO CABIN GROUPS

Group I and II

Group III and IV				Group I and II							
Boy's Name	June 12, 1965	Rank	June 23, 1965	Rank	Change in Status	Girl's Name	June 12, 1965	Rank	June 23, 1965	Rank	Change in Status
2	20	5	25	3	+5	16	24	1	36	1	+12
3	18	6	17	6	-1	17	14	8	19	3	+5
4	28	2	27	2	+1	18	16	7	20	3	+4
8	22	3	20	5	-2	19	22	2	14	7	-8
9	21	4	23	4	+2	23	20	6	13	9	-7
11	37	1	35	1	-2	26	21	3	20	3	-1
14	17	7	7	10	-10	30	22	2	22	3	0
						27	24	1	29	2	+5

III

I

Choices gained Choices lost Subtotal				Choices gained Choices lost Subtotal			
+8 -15 -7				+26 -16 +10			

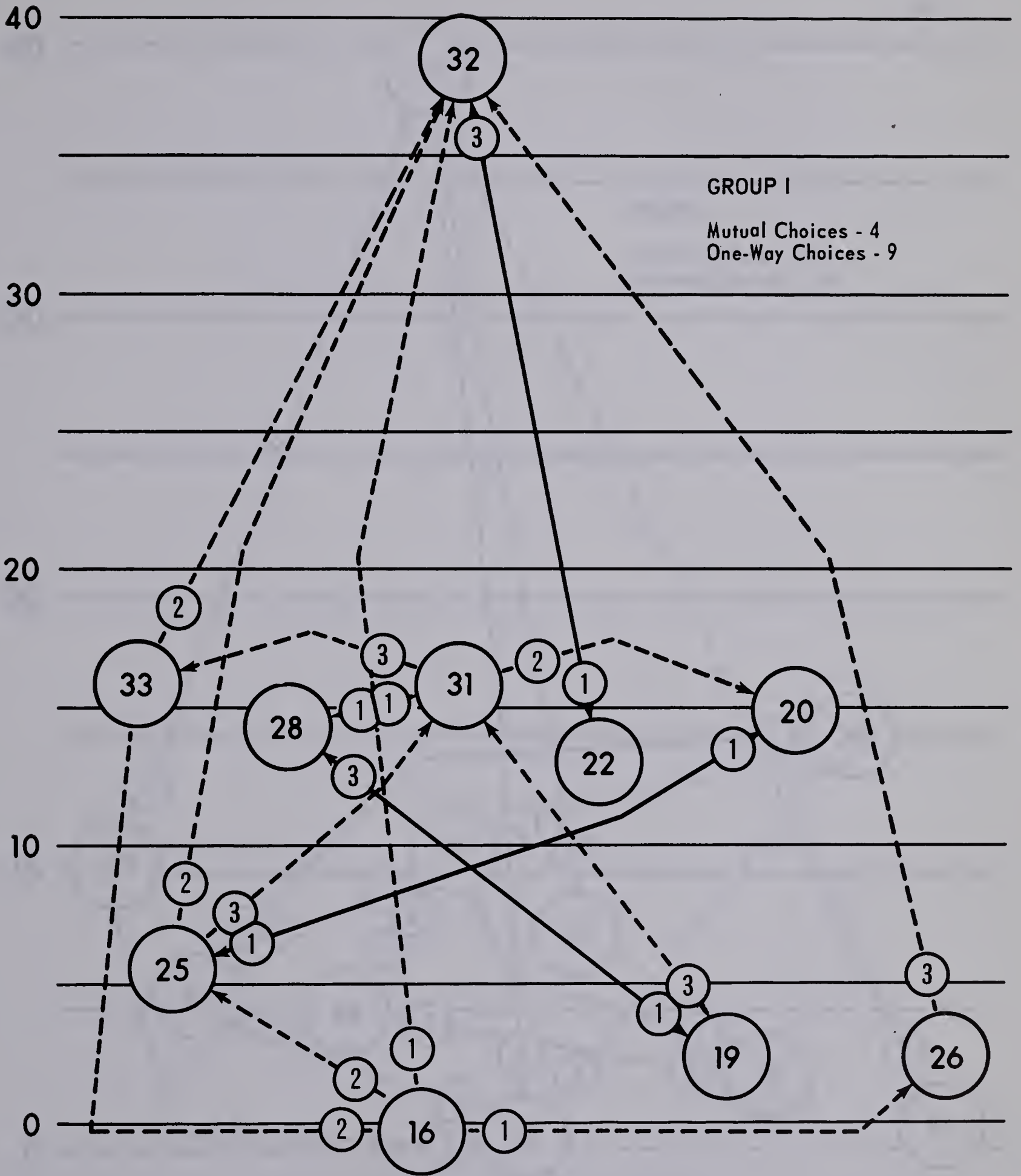
1	1	13	1	13	0	15	7	12	10	10	+3
5	11	11	10	8	-1	20	11	9	7	14	-4
6	4	12	2	12	-2	21	9	10	14	7	+5
7	12	10	11	7	-1	22	6	14	9	12	+3
10	0	14	1	13	+1	25	3	15	7	14	+4
12	13	9	10	8	-3	28	7	12	9	13	+2
13	17	7	7	10	-10	29	8	11	8	11	0

IV

II

Choices gained Choices lost Subtotal				Choices gained Choices lost Subtotal			
+1 -17 -16				+17 -4 +13			

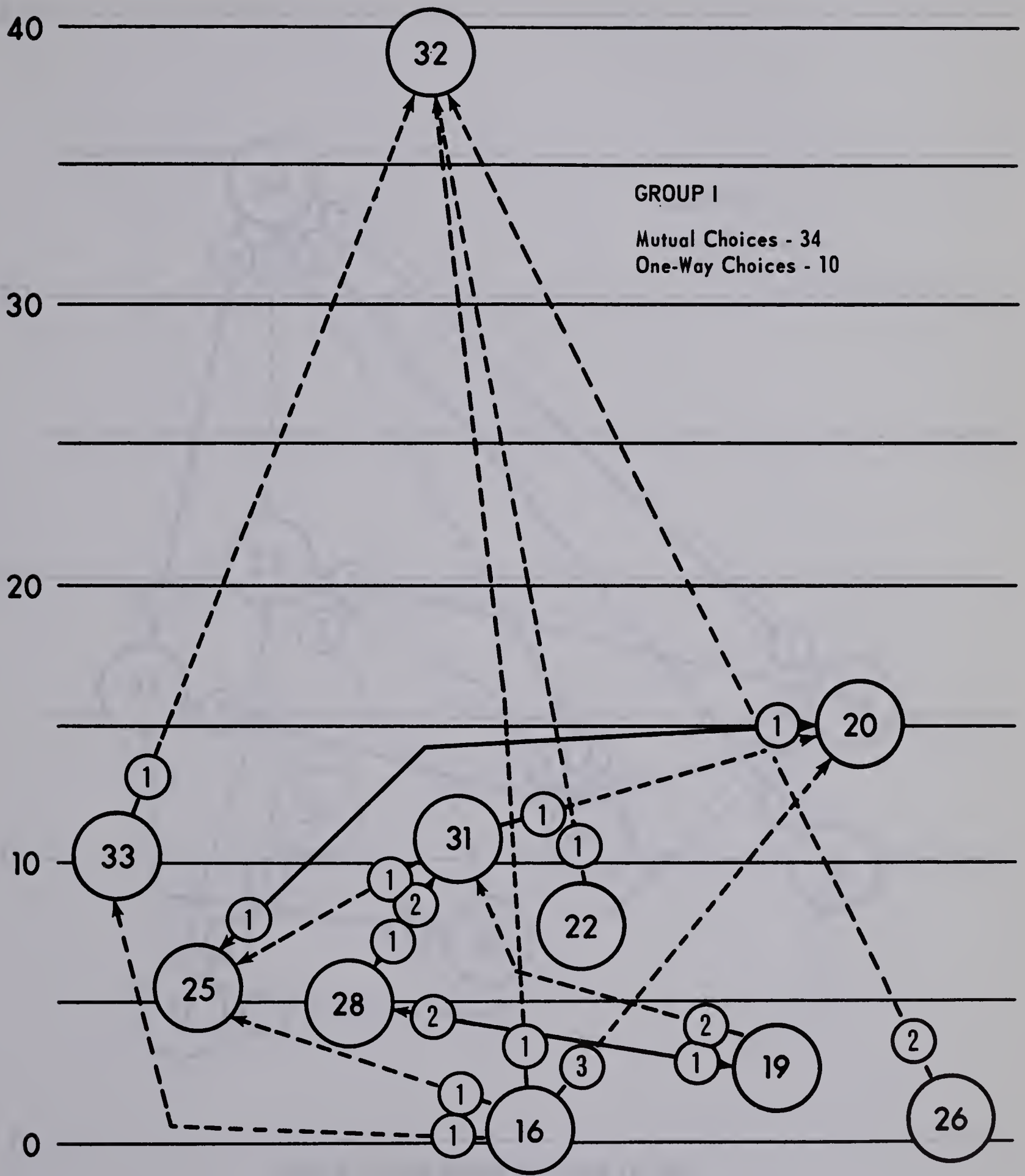
Total				Total			
-23				+23			



GIRLS - CABIN GROUP I - JUNE 12, 1964

FIG. 5

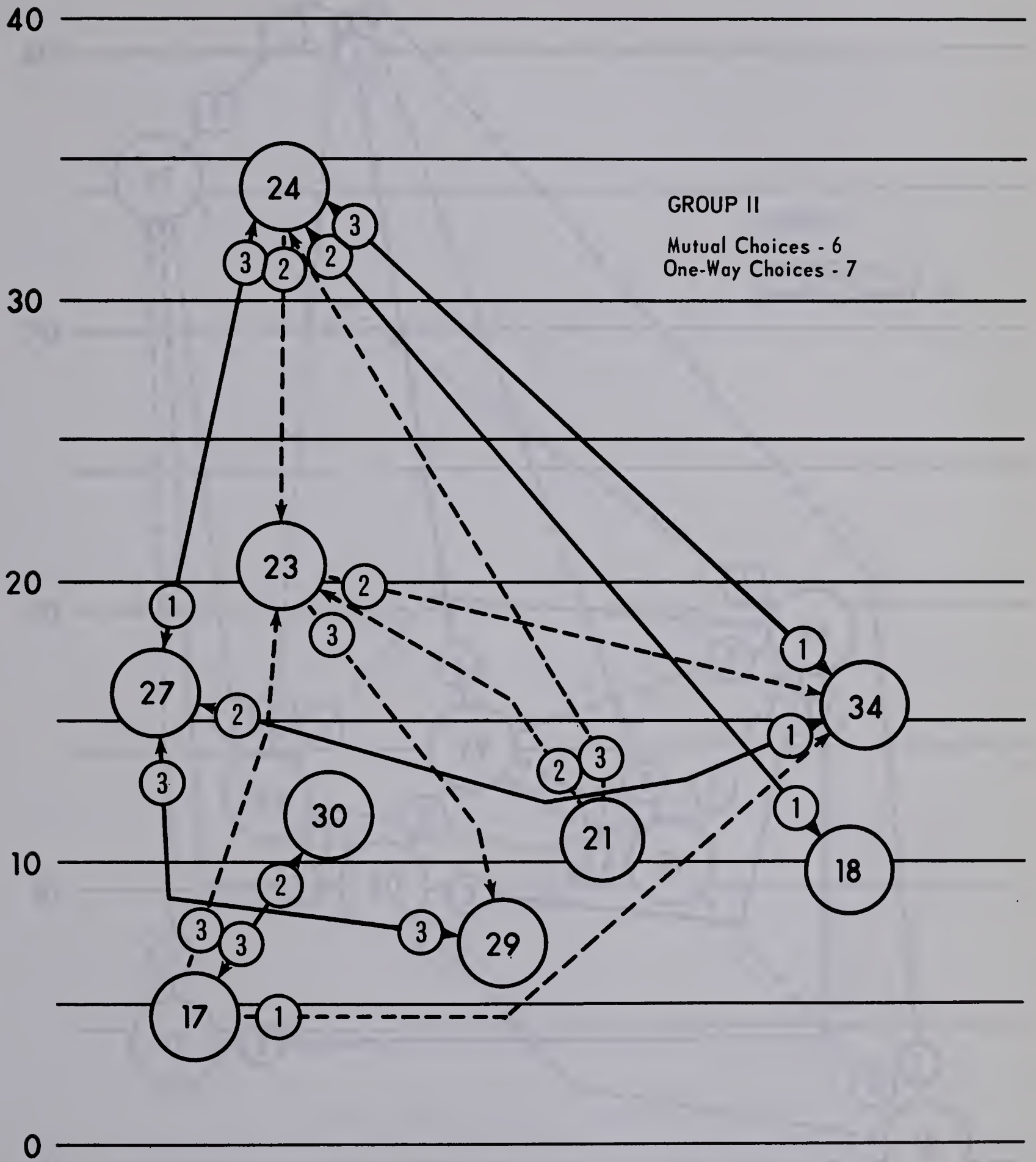
SOCIAL RANK OF STUDENTS AND THEIR SOCIAL DISTANCE BEFORE CAMP AS A CABIN GROUP



GIRLS - CABIN GROUP I - JUNE 23, 1964

FIG. 6

SOCIAL RANK OF STUDENTS AND THEIR SOCIAL
DISTANCE AFTER CAMP AS A CABIN GROUP



GIRLS - CABIN GROUP II - JUNE 12, 1964

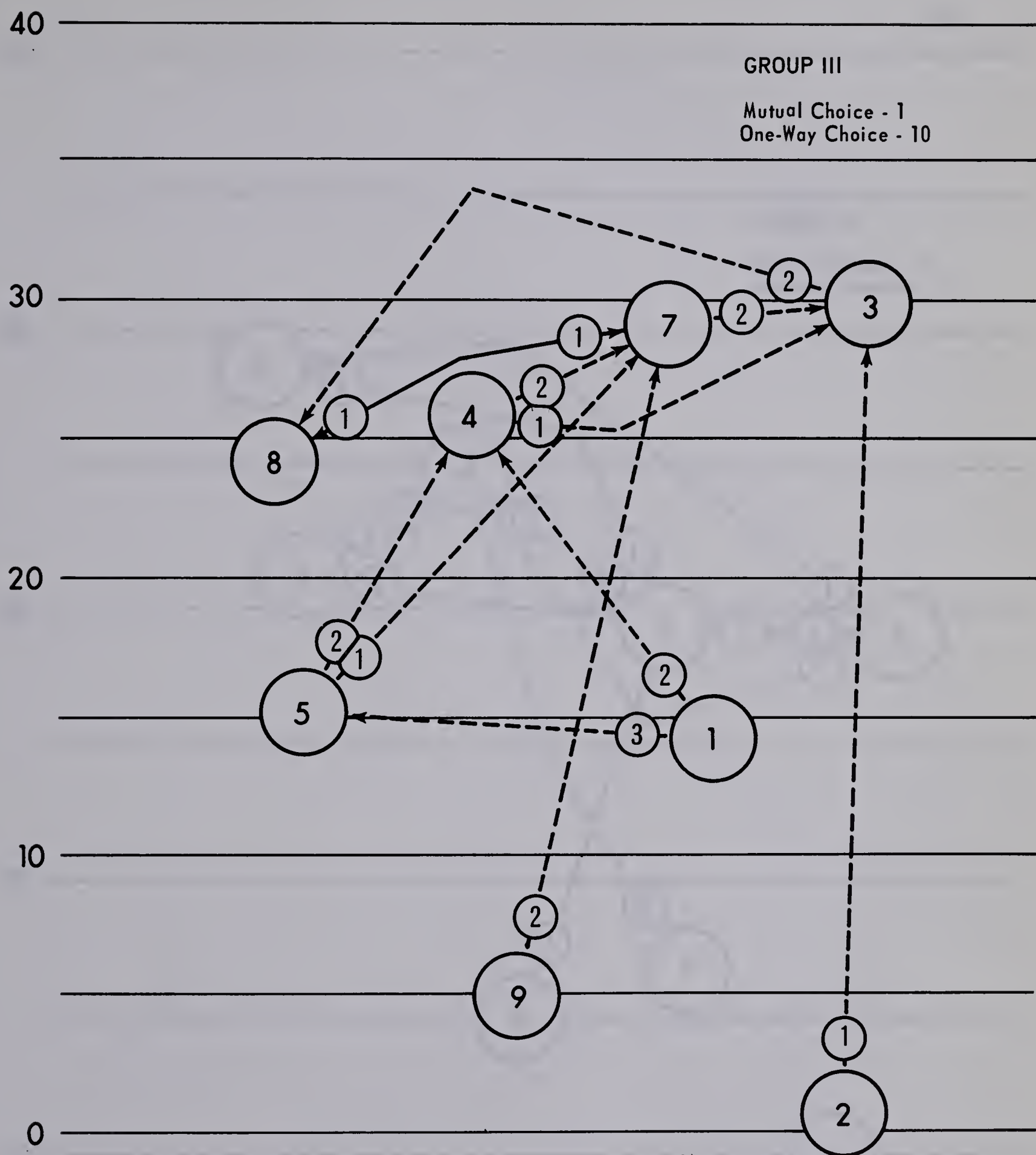
FIG. 7

SOCIAL RANK OF STUDENTS AND THEIR SOCIAL DISTANCE BEFORE CAMP AS A CABIN GROUP



FIG. 8

SOCIAL RANK OF STUDENTS AND THEIR SOCIAL DISTANCE AFTER CAMP AS A CABIN GROUP



BOYS - CABIN GROUP III - JUNE 12, 1964

FIG. 9

SOCIAL RANK OF STUDENTS AND THEIR SOCIAL DISTANCE BEFORE CAMP AS A CABIN GROUP

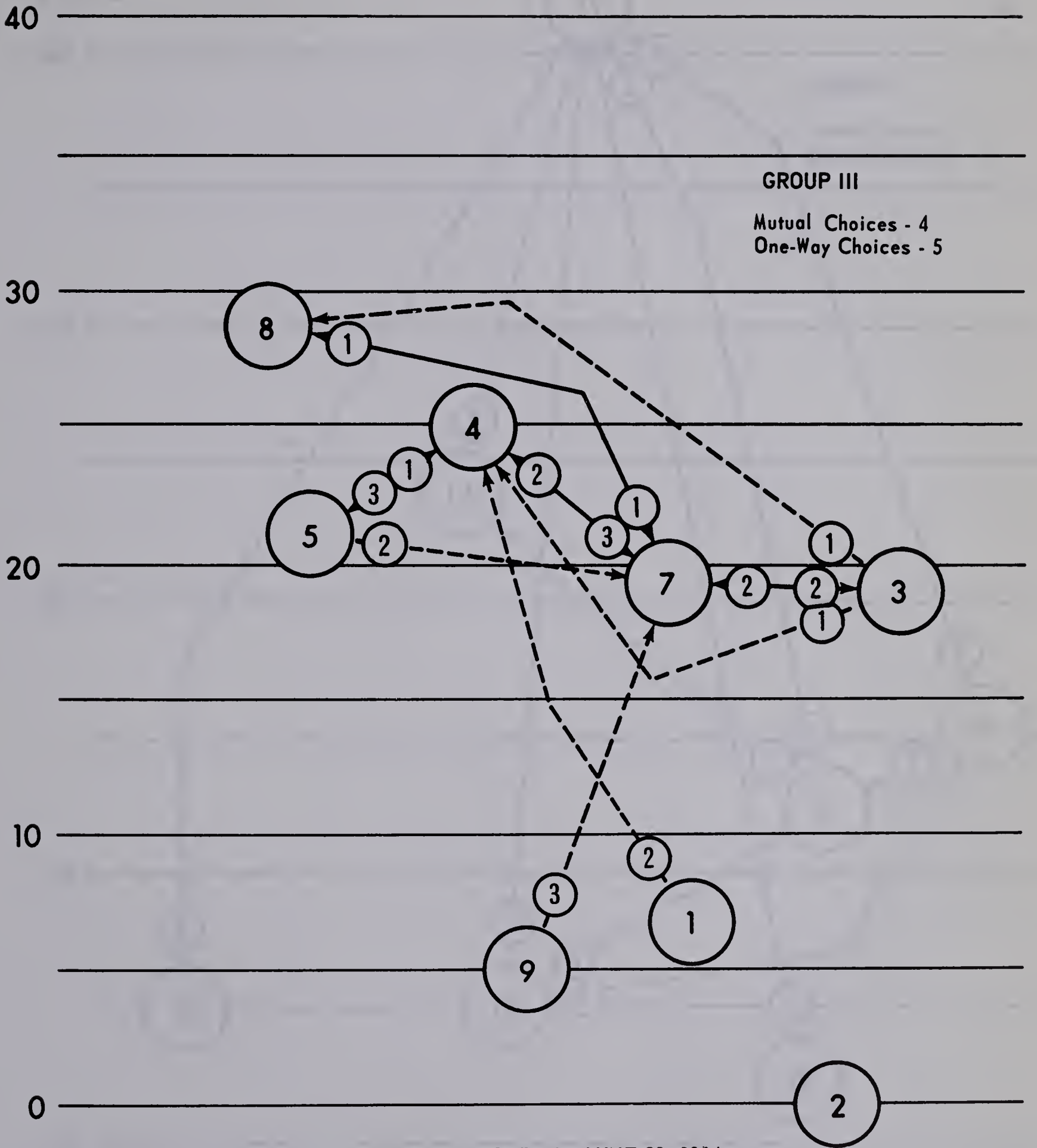


FIG. 10

SOCIAL RANK OF STUDENTS AND THEIR SOCIAL DISTANCE AFTER CAMP AS A CABIN GROUP

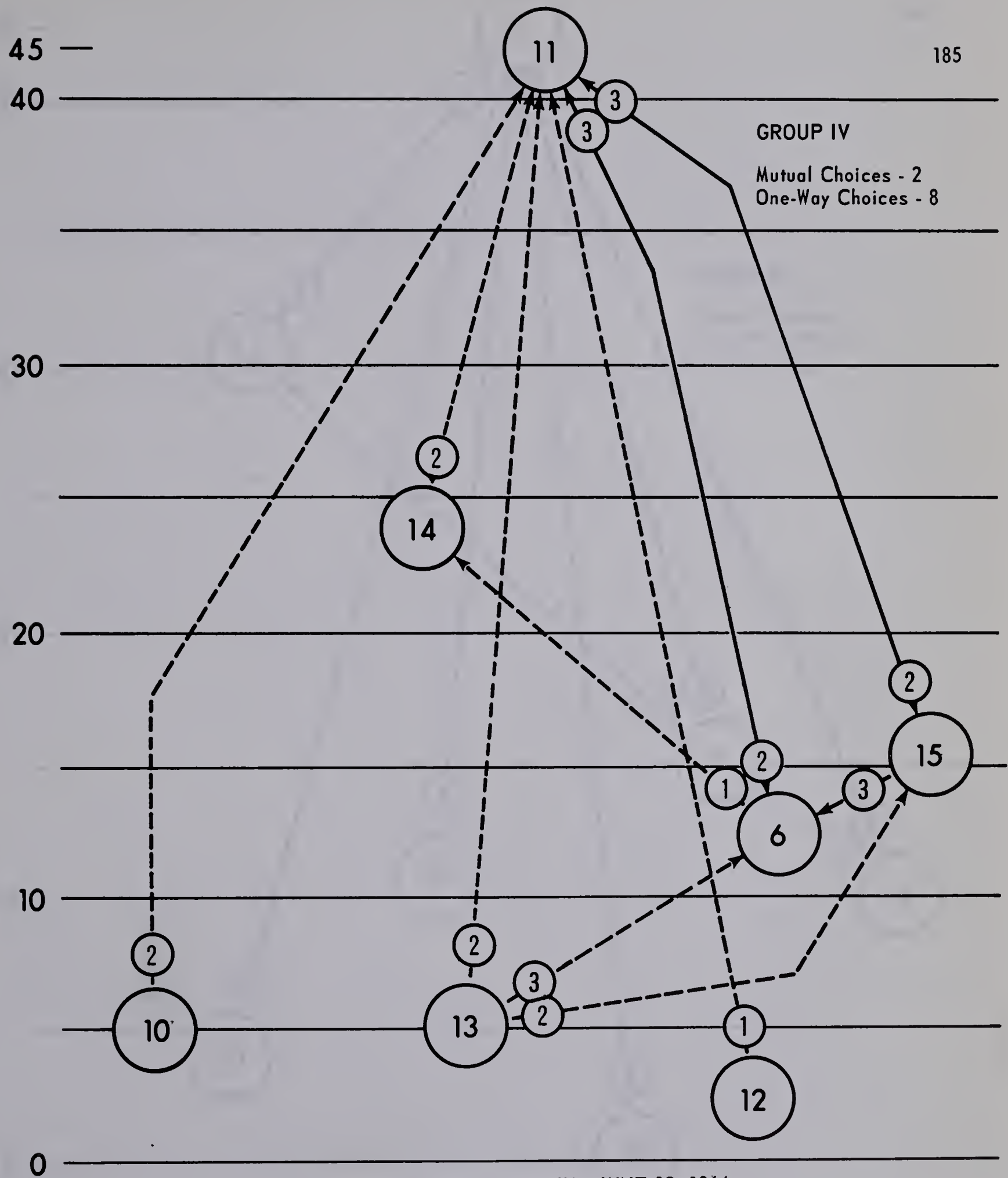


FIG. 11

SOCIAL RANK OF STUDENTS AND THEIR SOCIAL DISTANCE BEFORE CAMP AS A CABIN GROUP

40

30

20

10

0

GROUP I

Mutual Choices - 9
One-Way Choices - 7

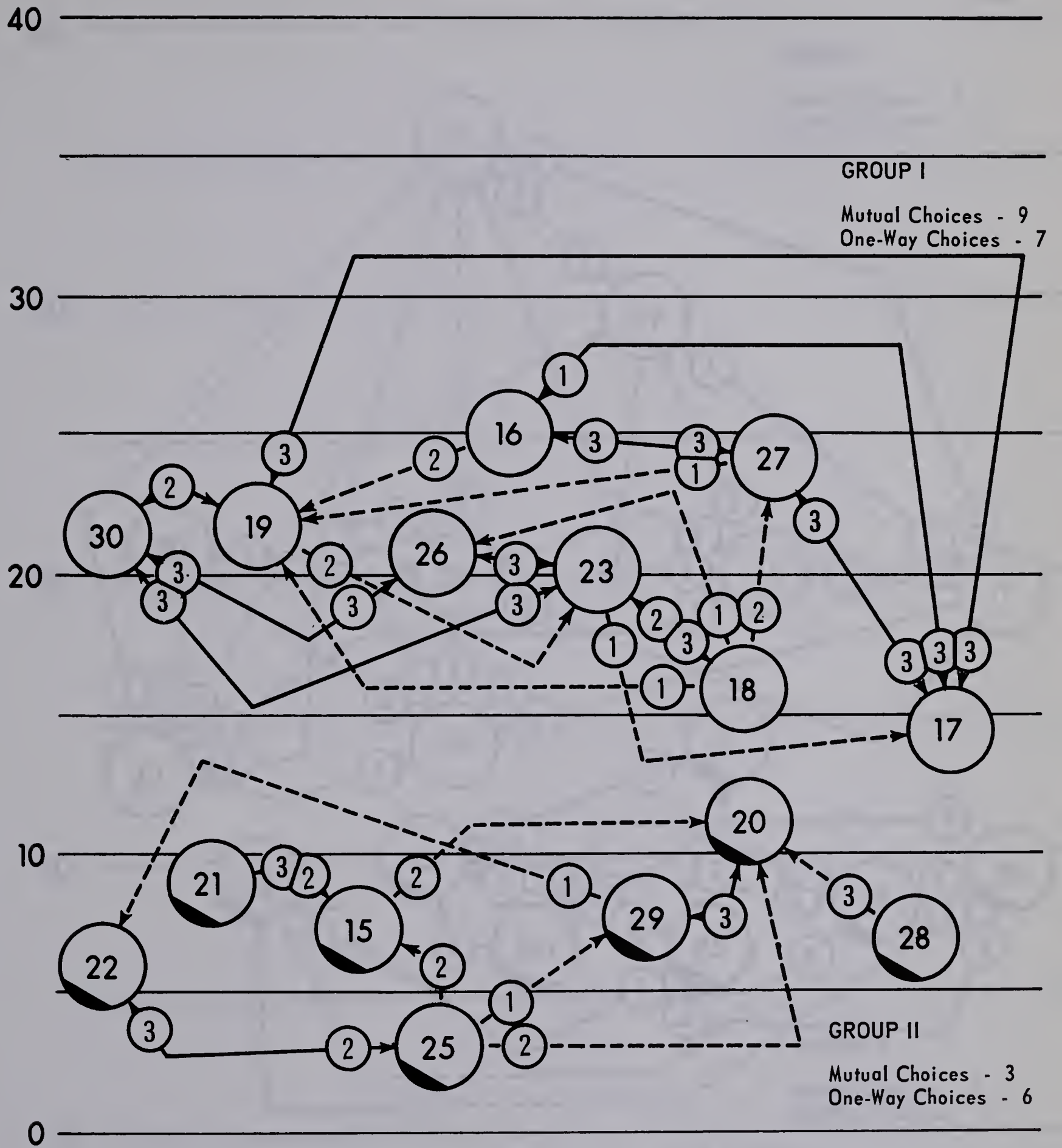
GROUP II

Mutual Choices - 3
One-Way Choices - 6

GIRLS CABIN GROUPS - I AND II - JUNE 11, 1965

FIG. 13

SOCIAL RANK OF STUDENTS AND THEIR SOCIAL
DISTANCE BEFORE CAMP AS A CABIN GROUP



40

GROUP I

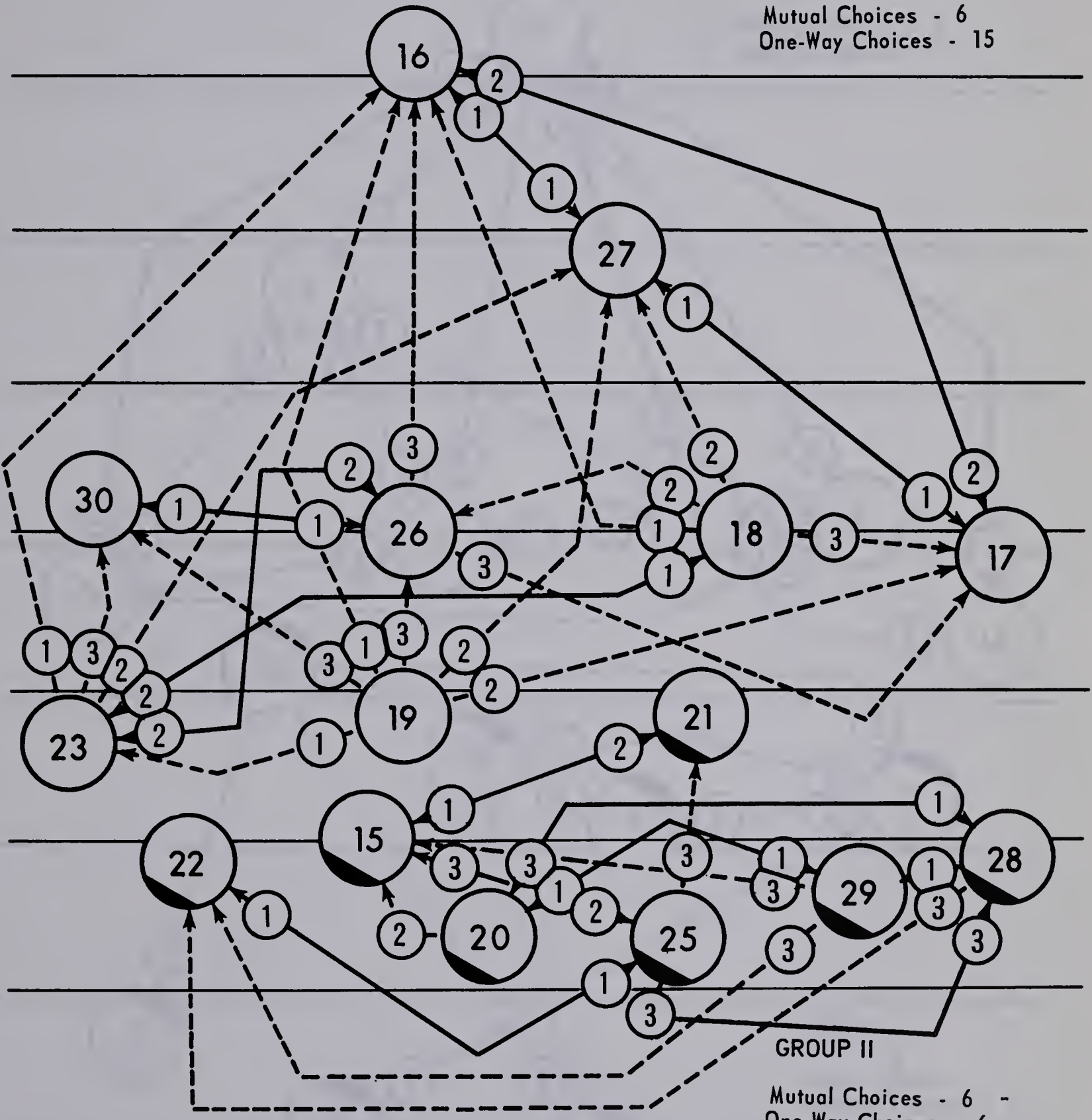
Mutual Choices - 6
One-Way Choices - 15

30

20

10

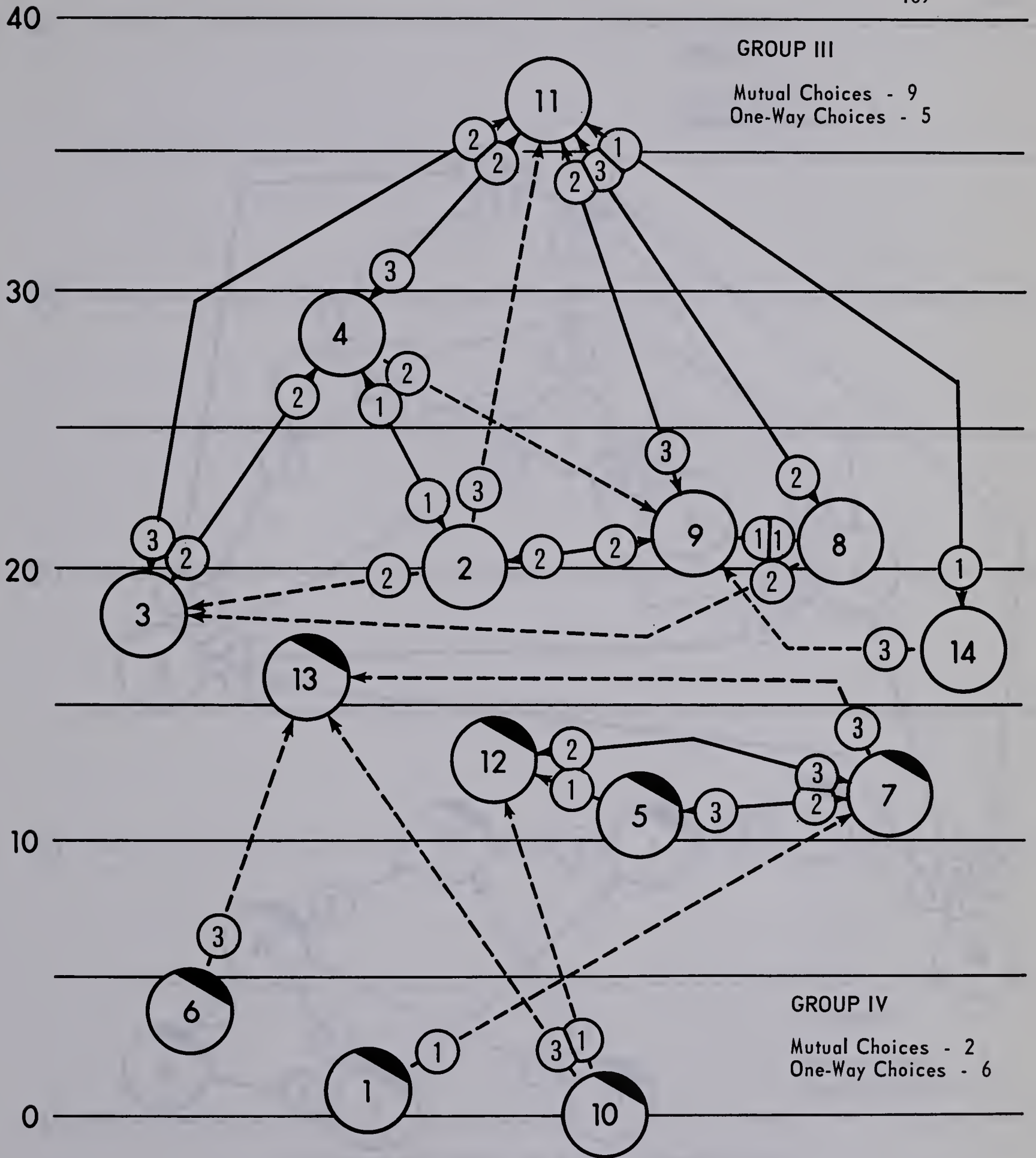
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GIRLS CABIN GROUPS - I AND II - JUNE 21, 1965

FIG. 14

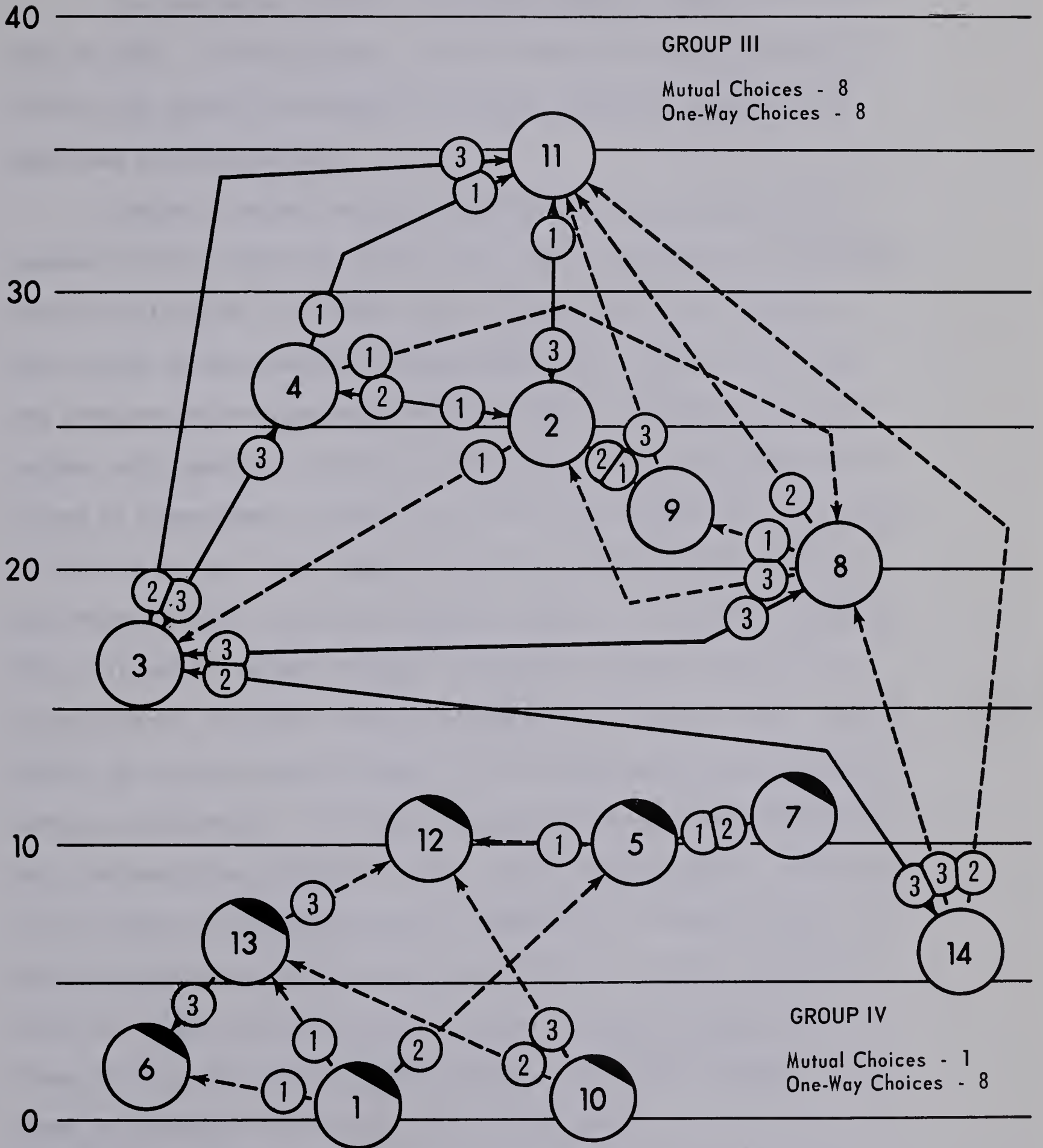
SOCIAL RANK OF STUDENTS AND THEIR SOCIAL
DISTANCE AFTER CAMP AS A CABIN GROUP



BOYS CABIN GROUPS - III AND IV - JUNE 11, 1965

FIG. 15

SOCIAL RANK OF STUDENTS AND THEIR SOCIAL DISTANCE BEFORE CAMP AS A CABIN GROUP



BOYS CABIN GROUPS - III AND IV - JUNE 21, 1965

FIG. 16

SOCIAL RANK OF STUDENTS AND THEIR SOCIAL
DISTANCE AFTER CAMP AS A CABIN GROUP

The reduction of choices changing cabins was 22 less in 1965 than in 1964. In this project the structuring of cabins according to social rank reduced the number of choices leaving the groups, thus improving ingroup bonding.

Ingroup cohesion was also enhanced in the top rank cabins because students wanted to be with those who are popular, and confident. Jennings (13:71-98) has stated, that children select those who at their stage of development, more skillfully meet special situations and problems confronting them, or have greater confidence and better contact with specific elements in situations that are troubling them, or who by temperament are able to see life more zestfully. As a result in 1965 at the pre-test, Group I (Fig. 13) had 25 ingroup choices, and Group III (Fig. 15) had 23 ingroup choices. In contrast Group II (Fig. 13) had 12 ingroup choices, and Group IV (Fig. 15) had 10 ingroup choices. The high ranking groups had over twice as many ingroup choices as the low ranking groups. The overall choice for all cabin groups in 1965 was 70. Following the camp since all cabins improved with the exception of Group IV (Fig. 16) in ingroup choice, this signifies further that ingroup cohesion improved by structuring the groups according to social rank; Group I (Fig. 14) had 27 choices, Group III (Fig. 16) had 24 choices, Group II (Fig. 14) had 18, and Group IV (Fig. 16) had 10 choices giving a total of 79 choices. This shows an increase of 9 choices in the 1965 group.

In the 1964 camp, the choices were more evenly distributed during the pre-test, but the ingroup choices were less, and the improvement in choice low. On the pre-test Group I (Fig. 5), had

17 ingroup choices, Group II (Fig. 7) 19, Group III (Fig. 9) 12, and Group IV (Fig. 11) 12 to make a total of 60 choices, 10 less than the number recorded by the 1965 group.

The post-test scores were, Group I (Fig. 6) 16, Group II (Fig. 8) 24, Group III (Fig. 10) 13, and Group IV (Fig. 12) 9, totaling to an aggregate of 62 choices, a mere increase of 2 choices over the pre-test.

Considering that there were 3 students less at the 1965 camp, this would constitute in terms of population a percentage comparison of 6.2 percent in 1964 and 38 percent in 1965, verifying the hypothesis that ingroup cohesion would improve by structuring the cabin groups according to social rank.

In addition, the most noticeable group growth was demonstrated by the low ranking girls in 1965. Group II (Table XLVII), received 17 choices from other groups on the post-test and gave away only 4. Analysis of the group shows that the choices given to the group were distributed evenly among five campers with a loss of 4 choices by one. In contrast in 1964 Group I (Table XLVI), received 50 choices which were monopolized by camper No. 24, who received 20 and camper No. 27, who received 19; two girls gained no improvement in choice and three lost choices.

In 1965 mutual choices were shared by all members of Group II (Fig. 13 and 14). There was an improvement in mutual choice from 3 to 6 after one week of camp.

The final factor in support of the hypothesis is the increase in mutual choices by members of the 1965 groups. Mutual choices

indicate that two people value and desire to be close friends. If there is a reciprocal feeling on the part of both this is termed a mutual bond. A bond that results from a first choice (indicated in the small circles) is more valuable than one that results from a third choice. In Table XLVIII the year of the camp is shown and the number of mutual bonds per cabin group before and after camp.

TABLE XLVIII
MUTUAL CHOICES BY CABIN GROUP

Cabin Group	1964		Diff.	Cabin Group	1965		Diff.
	Before	After			Before	After	
I	4	3	-1	I	9	6	-3
II	6	4	-2	II	3	6	+3
III	1	4	+3	III	9	8	-1
IV	2	1	-1	IV	2	1	-1
Total	13	12	-1	Total	23	21	-2
	41%	38%			79%	72%	

The mutual scores are converted into a percentage using the number of mutual scores per camper. It is evident that the 1965 camp had 38 percent more mutual choices initially and at the end of camp had 34 percent more choices.

Homogeneous Grouping - Hypothesis No. 3. The hypothesis

states that through homogeneous grouping of students on the basis of social rank, that when the students of low rank were placed together it would provide for a greater opportunity for individuals to win self esteem. This would also force those in the group with potential leadership ability to assert themselves. It was further hypothesized that when those students of high rank were grouped together, a struggle for leadership of the group would result.

Improvement in a person's self image depends to a large degree on how his peers treat him. Mead (14:133), has stated that we are the product of how others react to our behavior. If those in the cabin groups provide friendship for neglectees and isolates, their self esteem will improve. Analysis of the 1964 data, in contrast to the 1965 data verifies that homogeneous grouping reduces the number of isolates and neglectees, thus substantiating the first part of the hypothesis.

The girls' cabin groups (Figs. 5, 6, 7, 8, 13, and 14) demonstrated a loss of choice on the part of certain girl members. Cabin I in 1964 (Figs. 5 and 6) started with one group isolate, No. 16, and three neglectees, Nos. 22, 26, and 33. After the camping experience there were three isolates, Nos. 16, 22, and 26, and two neglectees, Nos. 19 and 33. In Cabin II (Figs. 7 and 8) there was originally one group isolate, No. 21, and three neglectees, Nos. 17, 18, and 30, who had mutual bonds showing some close contact with other group members. After camp, No. 21 was still a group isolate, while Nos. 17 and 18 were still neglectees.

In contrast, in 1965 (Figs. 13 and 14) Cabin I, the high constellation group had one neglectee, No. 18. After camp, No. 18 was still a neglectee, and No. 19 had become an isolate, losing not only in general camp esteem but also group esteem. Cabin II (Figs. 13 and 14) started with one isolate, No. 28, and one neglectee, No. 25. Following camp there were no isolates or neglectees. No. 28 had risen in popularity establishing two mutual choices with No. 25 and No. 20, on the same level in total camp popularity. As a group Cabin II (Figs. 13 and 14) rose in both camp and cabin choice. On the basis of these results with regard to girls it appears that homogeneous grouping in terms of social acceptability provided a greater opportunity for the development of one's self image.

The boys' cabin groups appears to respond differently from the girls. In 1964, Cabin III (Fig. 9), started with three group isolates, Nos. 1, 2, and 9. On the post-test (Fig. 10) there were three isolates, Nos. 1, 2, and 9, of whom No. 2 gave no choices to the group. This would suggest complete alienation from this particular cabin group. There were two neglectees, Nos. 3 and 5, who both had developed a close bond to the group leader, No. 7. The pattern in Cabin IV (Fig. 11) is similar even though the isolation factor is even more pronounced. At the beginning of camp there were three isolates, Nos. 10, 12, and 13, and one neglectee, No. 14. After camp (Fig. 12), Nos. 10, 12, 13, and 15, are all group isolates with No. 6 becoming a neglectee.

In 1965 after the students had been placed in cabins by social rank there was a marked reduction in isolates and neglectees.

Group III (Figs. 15 and 16) at the beginning of camp, consisted of students who all wanted to be together. Subsequently there were no isolates or neglectees. Following the camp the same situation existed, with the exception of No. 14 who had become a neglectee, dropping not only in camp but group esteem. His mutual bond changed to No. 3 who may be a contender for leadership over No. 11. In the pre-camp situation Cabin IV (Fig. 15) had three isolates, Nos. 1, 6, and 10, and no neglectees. Following camp, Cabin IV (Fig.) had two isolates, Nos. 1 and 10, with no neglectees, indicating some improvement in group growth. Further to this, No. 1 made three high-powered choices for members within the group. No. 7 had been rejected by the group, but still had a strong mutual bond with No. 5.

This improvement in the 1965 camp over the 1964 camp validates the first part of Hypothesis No. 3 which states that when students of low rank are placed together a greater opportunity to win self esteem resulted. Individuals established a closer bond structure, particularly in the girls' cabins. In a short period of a week, students had an opportunity to find out the weaknesses and strengths of each other. In this time they chose to reject or accept, whereas it is possible that a month at camp would enable them to understand each other, particularly if they had to solve rigorous problems which involved all members of their group.

The latter part of Hypothesis No. 3 states that homogeneous grouping forces those of low social rank to assert themselves in the role of leaders. It also states that since all the students who are usually chosen for leadership are in the high ranking group a conflict for control would result.

The camp structure was organized around cabin groups, each with a counsellor and cabin group leader. With random choice of students for cabins each unit automatically had a person of high camp rank who was chosen as leader. With homogeneous grouping on the basis of social rank, those students who would possibly never have an opportunity to be a leader must of necessity take over the responsibility. As an example, in the 1964 camp Group IV (Fig. 11), No. 11 having a camp rank of 45 automatically was appointed as leader. In contrast in the 1965 camp Group IV (Fig. 15), No. 12 took over as a leader even though he ranked lower than all the boys in Group III (Fig. 15). Observations by counsellor and staff confirmed that No. 12 naturally assumed the leadership role. He was physically stronger than the others, independent, willing to co-operate, and stopped all fights. He was tough, but never abused his position. No. 13 also assumed certain aspects of leadership, in that he was what is termed "the brain trust". He qualified for the position of "work leader" because of his ability to solve theoretical problems, yet he was not able to fully measure up to the expectations of the group because of his lack of knowledge pertaining to outdoor skills.

In accordance with the hypothesis there was far more internal strife among members of Cabin III (Figs. 15 and 16) than in Cabin IV. The counsellor reported fighting, and arguments among the members. In planning for activities, everyone wanted to do things "his way". No. 11, the most popular student in the cabin at the beginning of camp, became the most influential leader. However as camp progressed

No. 3, who initially had only two mutual choices in the group and two one-way choices, started to assume a leadership role. He was a work-leader, but gradually become a psych-leader as well, picking up those cabin members rejected by No. 11 (Fig. 16).

It is difficult to assess what happened regarding leadership in the girls' cabins. In Cabin I (Figs. 13 and 14), the girls moved apart and divided into two cliques; No. 16 was the most popular, but her friends, No. 17 and No. 27, had nearly as many choices. The three all had mutual bonds for each other. Similarly Nos. 18, 23, 26, and 30, were joined by mutual bonds, forming a second clique.

In Cabin II (Figs. 13 and 14) leadership was taken over to a certain degree by No. 15. In this group all the girls co-operated and worked well together as a unit. Leadership role was more, part of being a member of the whole group where everyone was strongly held together by mutual ties with all other members of the cabin.

An observation with regard to leadership that was not related to any hypothesis was that, as a student rose in overall camp rank, he/she dropped former friends that did not also rise in popularity. This was particularly evident in the 1964 camp; in the girls' cabin, Group I (Fig. 5), No. 32 had a rank of 38 and a mutual choice with No. 22. In the post-test (Fig. 6) No. 32 even though she made a total of 15 choices, she did not make one for any member of the group. In Group II (Fig. 7) No. 24 made 4 choices for other members of her cabin, at the end of camp, she made a mutual choice with No. 27 who had risen in camp rank from 16 to 35 choices, and with No. 29, who was low in camp rank, but rated third in cabin status.

The boys in Group III (Fig. 9) follow the pattern in reverse. The group leader No. 7, who had a camp rank of 29, in the pre-test, lost 10 choices outside the cabin to reduce his camp rank, but becomes more firmly established as a group leader. In the post-test (Fig. 10) he had 3 mutual bonds, and two one-way choices. He had a strong influence over all in his group with the exception of Nos. 1 and 2.

In contrast in Group IV (Fig. 11), the leader No. 11 has 45 camp choices and has mutual choices with No. 6 and No. 15. In the post-test, No. 11 (Fig. 12) chooses only No. 14 who has risen in camp rank from 24 to 31 choices.

A similar occurrence happened to the high constellation groups in the 1965 camp. The girls in Group I (Figs. 13 and 14) gave three choices to No. 16 on the pre-test. At the post-test No. 16 had risen to a rank of 36 choices from 24. In doing this No. 16 had kept her mutual choices but made her strongest choice for No. 27 who had also risen in camp and cabin popularity, and her next strongest choice for No. 17 who had remained static.

In the boys' cabin Group III (Figs. 15 and 16), No. 11 had given mutual choices to Nos. 3, 4, 8, 9, and 14. In the post-test he dropped Nos. 8, 9, and 14, who had dropped in both cabin and camp popularity. He transferred his choice to No. 2, who had gained rank, and kept his choice for No. 3, who had gained cabin rank, also for No. 4 who had gained camp rank.

From these observations it is concluded that as a person rises in rank he drops those in his association that do not also rise in popularity, with the larger public or within the small intimate

influence of the group. It is suggested that social stratification begins as early as elementary school as substantiated by the data. When the students are placed in groups at random the choice across cabin lines becomes greater than when the students are placed together according to social rank.

Cross-Sex Choices - Hypothesis No. 4. It was hypothesized that when Grade VI children are placed together for social as well as academic activities, the cross-sex choices increase. Table XIIX shows that in both camps cross-sex choices increased, supporting the findings of Stack (15). Certain factors contributed to this behavior. In analyzing the 1964 camp, these features may have been causative factors in creating a mean increase of 2.14 as compared to the 1965 mean increase of .04.

The age of the girls in the 1964 camp tended to be slightly higher than those in the 1965 camp, particularly in Group II. One of these girls, No. 24, had been in a "beauty queen" contest at Colonel Walker to help raise funds for the camp. She treated all students in a friendly manner, and took time to talk with everyone. As a result she started as a star (Table XLVI) with 34 points and increased to a total of 54 by the time camp was over. It is suggested that No. 24 became a model in whom not only boys but girls would desire to identify. Reference to Fig. 8 verifies a close mutual bond between No. 24 and No. 27. Previous to camp No. 27 had ranked fourth (Table XLVI) on the scale on the same level as four other girls; after camp, she ranked third with an increase of 19 points. It is suggested that close friendship between No. 24 and No. 27 helped to raise No. 27 in the

overall camp rank. Further research would shed light on whether close friendship with a star raises one's score. In the boys' groups in 1964 Nos. 4 and 11 (Table XLIX), were given the highest cross-sex choices. In comparing the increase in scores for the two boys, No. 4 actually lost one boy's choice and had six girls' choices given him (Table XLVI and XLIX). The same occurred for No. 11. As the most popular boy in camp, he actually increased only five choices in the post-test. However, he was given six cross-sex choices. This indicates that both boys had lost choices from other boys that were made up by girls. In contrast No. 14 (Tables XLVI and XLIX), increased eight choices of which five were from girls.

Cross-sex choices were further motivated by providing opportunities for students to participate together in social activities. Due to wet weather, one evening a square dance was held, another night an indoor track meet took the place of the conventional campfire program. Hikes and visits together as groups also helped to acquaint the students with each other. Finally, the structural setting of the cabin groups promoted cross-sex choices. Since the students had been selected for the cabin groups at random, each group contained stars who immediately assumed leadership. As such these boys and girls stood out in most group activities.

The 1965 cross-sex choices per person are reflected in a cross-sex mean of .04 choices, considerably lower than the score for the 1964 camp. The limitation of coeducational activities was not planned, but occurred naturally because of different environmental and social factors. First, a class beauty queen had not been selected previous

TABLE XLIX

COMPARISON OF CROSS SEX CHOICES

Group	1964 No.	June 12 1964	June 23 1964	Diff.	1965 No.	June 11 1965	June 23 1965	Diff.	Group
III B O Y S IV	1	1	1	0	2	5	7	+2	III B O Y S IV
	2	1	0	-1	3	0	0	0	
	3	9	9	0	4	6	2	-4	
	4	7	13	+6	8	7	0	-7	
	5	3	6	+3	9	2	5	+3	
	7	2	5	+3	11	8	5	-3	
	8	4	7	+3	14	6	0	-6	
	9	0	1	+1					
				+16 -1				+5 -20	
IV I G I R L S II	6	0	3	+3	1	0	1	+1	IV I G I R L S II
	10	0	0	0	5	0	1	+1	
	11	12	18	+6	6	0	1	+1	
	12	0	1	+1	7	1	5	+4	
	13	1	5	+4	10	0	1	+1	
	14	9	14	+5	12	1	0	-1	
	15	1	0	-1	13	2	0	-2	
				+19 -2				+8 -3	
II	16	0	0	0	16	9	14	+5	II
	19	0	0	0	17	1	3	+2	
	20	1	2	+1	18	2	3	+1	
	22	1	2	+1	19	1	1	0	
	25	0	0	0	23	0	0	0	
	26	0	0	0	26	4	5	+1	
	28	0	0	0	30	5	7	+2	
	31	1	0	-1	27	4	6	+2	
II	32	4	7	+3					II
	33	2	1	-1					
				+5 -2				+13 -0	
	17	0	1	+1	15	0	0	0	
	18	0	0	0	20	0	0	0	
	21	0	0	0	21	0	1	+1	
	23	0	1	+1	22	0	0	0	
	24	7	23	+16	25	0	0	0	
	27	2	14	+12	28	2	0	-2	
II	29	0	2	+2	29	1	0	-1	II
	30	1	4	+3					
	34	1	4	+3					
				+38 -0				+1 -3	
	+78 -5				+27 -26				
	+73				+1				
	Mean Increase + 2.14				Mean Increase = .04				

to camp eliminating the focus on one person, in whom the boys could identify. Second, the weather was such that evening activities were held in the most part out-of-doors, negating the need for a square dance or indoor track meet. Third, the counsellors kept the campers involved in their own group activity, which reduced visiting and joint group activity. Last, the allocation of students to groups based on the results of their high or low social rank, reduced the cross-group visiting evident in the 1964 camp. Students of high rank had more mutual bonds than those of low rank (Figs. 13 and 15). Once a student reaches a high level of popularity he or she tend to drop former friends of low popularity (Figs. 5, 6, 7, 8, 11, and 12).

The same principle tends to be true with homogeneous grouping, those of high rank are already together and they do not reach out as much to other groups. Even though those of low rank would like to establish friends with those in the high group they cannot because the top group does not permit their intrusion. Consequently even interaction across sex lines becomes more limited.

The results show that cross-group choices may result from structuring the camp setting and also from creating a set toward one or more persons who are defined as popular and desirable.

Isolates, Neglectees, Hypothesis No. 5. It was hypothesized that under the guidance of a sympathetic counsellor, and in the environment that emphasizes friendship, neglectees and isolates will rise in group esteem. As evidenced in the 1964 camp the hypothesis was not supported by the results. It was found that when students are placed in groups according to random selection that the isolates and neglectees

increased in number. (Refer to discussion on Homogeneous Grouping, Hypothesis No. 3 for data to support this statement.) However in 1965 the hypothesis was validated by the results that occurred through the allocation of students to cabin groups on the basis of social rank. The use of this method radically reduced the number of isolates and neglectees in the cabin groups (Homogeneous Grouping Hypothesis No. 3.).

Similarly in relation to the whole camp, in 1964 (Table XLVI) among the boys, No. 2, who was a neglectee became an isolate, No. 12 who had been a near neglectee, became a neglectee. Among the girls, No. 16, who had been an isolate, became a neglectee. In the 1965 camp (Table XLVII), among the boys No. 1, who had been a neglectee, remained a neglectee and No. 10, who had been an isolate, became a neglectee. The girls' groups had no isolates or neglectees.

Relationship Between High Social Rank and High Attitude Scale Scores - Hypothesis No. 6. This hypothesis states that a high social rank will be associated with a high score on the attitude scales (Tables XX and XXI). The data for the correlation was first tabulated on Table L. Under "number", the code numbers for each person's name are recorded. The top ranking cabin groups for both the 1964 camp and the 1965 camp were placed on the upper section of the table and the low ranking groups were placed below. The post-test scores for each student on Scale VI - Attitude Toward Others (Table XXXV), and Scale VII - Attitude in Competition (Table XXXVII), are placed in the columns under Scale VI and Scale VII.

The correlations were made between high rank and high scores

RELATIONSHIP BETWEEN LOW SOCIOMETRIC RANK AND SCORES ON THE SOCIAL DEVELOPMENT SCALES

		Number	Rank	Scale VI Atti- tude	Scale VII Compet- ition			Number	Rank	Scale VI Atti- tude	Scale VII Compet- ition		
1964	B	11	1	1	0	11	1	2	5	B	1965		
		14	2	1	4	14	2	2	2				
	O	8	3	0	3	12	3	4	4	O			
		4	4	2	4	9	4	3	4				
	Y	5	5	3	3	8	5	3	5	Y			
		6	8	3	5	3	6	5	5				
	S	13	9	3	2	14	10	2	2	S			
	G	24	1	4	3	16	1	5	5	G			
		32	2	4	4	27	2	3	3				
	I	27	3	4	5	17	3	4	5	I			
		34	4	4	4	18	2	3	2				
R	29	5	4	2	26	3	4	4	R				
	23	6	2	5	30	3	4	4					
L	21	7	5	5	19	7	4	3	L				
	31	8	4	5	23	9	4	5					
1964	B	15	10	2	5	7	7	4	5	B	1965		
		1	11	4	5	12	8	3	5				
	O	9	12	4	4	5	8	3	4	O			
		10	13	0	0	13	10	5	5				
	Y	12	14	0	1	6	12	5	4	Y			
		2	15	2	5	10	13	3	3				
	S					1	13	4	5	S			
	G	33	8	4	5	21	7	2	4	G			
		30	10	4	4	15	10	4	4				
	I	22	11	4	1	29	11	3	5	I			
		25	12	5	4	22	12	4	2				
R	28	13	4	4	28	13	3	2	R				
	17	14	3	4	25	14	4	5					
L	19	15	4	5	20	14	3	5	L				
	18	16	3	3									
S	26	16	5	5					S				
	16	18	3	3									

by using Yules Q (9:242-252). To make the results more rigorous only the high intensity scores of 4 and 5 were used.

Results from the correlation indicates (Table LI) that a Q of .0 signifies no more relationship between high social rank and high scores than between low social rank and low scores. The same type of result occurred in comparing high social rank and high scores in relation to competition. A Q. of $-.15$ (Table LII) indicates that there is possibly a stronger correlation between low rank and high scores in competition. It is therefore possible to imply that children of low social rank may be more prone to the expectations of society than students of high social rank.

The results of the correlation refute the hypothesis by confirming a low correlation between high social rank and high test scores on the scales related to sharing and caring for others and behavior under the stress of competition, and indicate that in terms of competition there is a correlation between low social rank and high scores on the scales.

TABLE LI

CORRELATION BETWEEN HIGH SOCIOMETRIC RANK AND
HIGH POST SCORES ON SCALE NO. VI - ATTITUDE
TOWARD OTHERS -- TYPIFIED IN CARING FOR
AND SHARING WITH OTHERS

	HIGH RANK	LOW RANK	
HIGH SCORE +	15	15	30
LOW SCORE -	15	15	30
TOTAL	30	30	60

$$Q = \underline{.0}$$

TABLE LII

CORRELATION BETWEEN HIGH SOCIOMETRIC RANK AND
HIGH POST SCORES ON SCALE NO. VII - ATTITUDE
UNDER THE STRESS OF COMPETITION

	HIGH RANK	LOW RANK	
HIGH SCORE +	19	21	40
LOW SCORE -	11	9	20
TOTAL	30	30	60

$$Q = \underline{-.15}$$

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CHAPTER VI

SUMMARY, CONCLUSIONS, RECOMMENDATIONS

Summary

The purpose of this study was to evaluate the attitude change and social development of Grade VI students from Colonel Walker School in Calgary, who attended the 1964 and 1965 pilot projects in school camping at Bragg Creek. To achieve the objective, attitude scales were developed and sociometric questionnaires constructed for the testing of the students.

A review of the literature revealed that little had been done in the measurement of attitude components related to outdoor education activities. The sociometric questionnaire had been used extensively by other experimenters to measure the social distance between students in a camping situation.

In order to develop attitude scales with a high level of reliability, the Guttman scale model was chosen and the Goodenough technique of scalogram analysis was used. This required a series of questions which would elicit a gradation of feeling from "strongly agree", to "strongly disagree". The extent to which the items differentiate between students in relation to the scale model is called the Minimal Marginal Reproducibility, and the degree to which the items draw a consistent response from each student is called the Coefficient of Reproducibility. The criterion of .75 for the M.M.R. and .85 for the C.R. was taken by the experimenter as the basis for an acceptable scale.

Before items could be developed information had to be gathered on the physical, social, emotional, and mental needs of pre-adolescent children. A study was made on their attitudes, beliefs, and values. In addition the Grade VI Alberta school curriculum, and research, pertaining to the teaching of science, geography, topography, and conservation, was reviewed.

The scales were developed by first composing 150 questions pertaining to the subject areas. They were pre-tested on Grade VI students from Mill Creek and McKernan Public Schools in Edmonton. After analysis, some items were discarded and new ones were added. The improved pre-test was given to 62 Grade V and VI students at the Carstairs Public School, who were planning a field trip to the Drumheller Badlands. This group was chosen because it was assumed that they would have somewhat similar pre-camp conditioning, and would respond to the items on the scales in like fashion to the students at Colonel Walker School.

The highly positive response of the Carstairs students indicated that more negative items would need to be constructed to obtain a distribution according to the Guttman model. This was done, and the final test scales were constructed in Science: No. I - Trees and Plants, No. II - Birds, Animals, and Insects; Conservation: No. III - Fire Protection; Social Studies: No. IV - Topography and Geography, No. V - Pioneer History; Social Development: No. VI - Attitude Toward Others, No. VII - Stress under Competition; Outdoor Skills: No. VIII - Shelter Building, No. IX - Compass Use; and No. X - Aesthetic Sensitivity.

Analysis of the results from the Colonel Walker test samples produced scales with M.M.R.s ranging from .59 to .87 and C.R.s as low

as .81 and as high as .96. Out of ten scales administered four times, 78 percent of the M.M.R.s were below .75 and of the C.R.s, 83 percent were above .85. Those scales which did not meet the standards of the criteria were termed quasi, but were still used because as such they were superior to scales devised by a less rigorous technique.

The instrument used to measure social distance was constructed from the questionnaires used by Northway and Lindsay (1:24-25) and Gronlund (2). It was assumed that from measurements of this factor important inferences could be made concerning the social status, growth, leadership, and inter-personal skills of students. The questionnaires were administered before and after the camps. The results were tabulated and the social distance of students in relation to the whole camp, and to those students in their cabin group were diagrammed.

To give meaning to the responses of the students on the evaluative instruments, a descriptive analysis of the Southeast section of Calgary, including ethnic origin, language, religion, economic status, housing, and employment, was made, utilizing the 1961 data from the city census tract.

Academic ability, achievement, and previous camping experiences of the children were recorded and compared. In addition, the setting of the camp and its operation, personnel and their teaching procedures, were described (Appendices A to F).

Interpretation of the results from the attitude scales was assessed in terms of attitude change in relation to possible attitude change; the percentage of students who stayed at the upper limits of the scales for both pre- and post-tests; and the percentage of students

who scored either 4, or 5, on the post-test. The first aspect was arrived at by formula and the positive and negative change indicated by the symbols P_i and N_i . To make comparisons between scales, both scores were converted to a Ratio Index (R.I.) equal to $\frac{P_i}{N_i}$. All scores below one signified a negative regression, and those above one, a positive change. A strong factor influencing the scores was related to the limitations of the scale; because of this, if a high percentage stayed at the upper limits for both pre- and post-tests, this was taken as a strong indication that the students were highly interested, and thus the R.I. could have been much higher. Lastly, a table was constructed to show that even though some students had not made an appreciable change in interest, a high percentage still had a very high interest level (based on 4 and 5 scores). In 1964, 24.6 percent of the boys and 66.3 percent of the girls were in this category. In 1965, 58.4 percent of the boys and 59.3 percent of the girls were in this category.

A correlation between pre-camping experience and positive scores was made using Yule's Q to determine if "reality shock" had reduced the scores of the pre-test non-campers. A second correlation was calculated between high social rank and high post-test scores on the scales: "Attitudes Toward Others" and "Stress Under Competition". Low scores infer that there was just as strong a relationship between low rank and high scores.

The sociometric data was recorded on Tables XLVI to LII, depicting total positive and negative choices for individuals and cabin groups, cross sex choices, mutual choices, and relationships between

social rank, and attitude scales. The social distance of each student in relation to the whole camp and his/her relationship to others in the cabin group was diagrammed on Figs. 5 to 16.

The data obtained, and the observations made, are related to three different areas: the development of Guttman Scales and the resulting conclusions; conclusions drawn from the application of the scales to the experimental sample; and the conclusions regarding social distance and personality development.

Conclusions

Attitude Scale Development

1. Guttman scales can be developed, and used successfully with elementary school children.
2. In order to develop Guttman scales with a high level of reliability for elementary school children, the "psychological object" must be in accordance with maturity of the group. In most instances the "object" must be a concrete object, such as a "tree", which has a general meaning, or an identifiable feeling such as joy, sadness, happiness, or anger. At this age, concepts such as democracy, Christianity, freedom, are too diversified in meaning to be of use in the construction of scales.
3. The scales developed in this study can be used with any sample of students of the same age category, provided that the response of the students is in accord with the requirements of the Guttman scale model. This would

necessitate application of the Goodenough technique of scale analysis, to test for reliability.

4. A radical rise in the M.M.R. on the post-tests reduces the discriminatory power of the scale but does not destroy its value as a means of showing a strong improvement in the overall attitude of a group. In every instance unless the scale items are changed, when there is a radical improvement on the part of the majority in a group, the M.M.R. is going to automatically become large and only discriminating at the upper limits of the continuum.
5. Items used in a Guttman scale can be changed from a less intense position on the continuum to a more intense position on the continuum or vice versa, for each group tested, without jeopardizing the reliability or validity of the scale. This unique procedure accounts for sample differences, in experience and background, causing one group to respond strongly negatively to an item, and another group to be undecided about it. This is contingent upon the same items being used in a scale, and the M.M.R. and C.R. remaining high.
6. The movement of items in a scale in accordance with the response of the sample tested improves both the M.M.R. and C.R. and enables a scale to be used with more diversified groups.

Attitude Scale Results

1. The hypothesis that an "improved attitude toward" would

not occur because of high pre-test means was found false in all cases but one. In 1965 the scale measuring Topography and Geography registered a regression from one to .37 while all other scales showed an increase over one from 1.3 to 44.1. It is concluded that the attitude of students toward the areas measured by the test instrument improved greatly by spending one week at outdoor school.

2. Reality shock was evident, particularly with non-campers, but cannot be considered a major factor in that students who had camped before scored as negatively to the scales as those who had never camped before.
3. The students after camp who had the strongest interest in outdoor education activities proved to be the girls in both camps.
4. Since 52.1 percent of the students following the camp experience registered a strong interest of 4 or 5 for those areas measured by the attitude scales, it is concluded that the interest level was high for both groups even though little change may have been registered by some students.
5. Outstanding improvement in 1965 was registered in all scales with the exception of Scale No. I - Trees and Plants, and Scale No. IV - Topography and Geography. From this it is concluded that there were factors in the second camp, which indicated an improvement in organization and approach to the presentation of the material.

Sociometric Results

1. When the factors as outlined by Sherif and Sherif (3:545-570) are not strong in the group setting, the social distance between students in a group increases rather than decreases. Instead of developing ingroup bonds between members of the cabin group the students made choices for others of high constellation in camp. However, if students are placed in cabin groups according to social rank (those of high constellation together, and those of low constellation together) a marked improvement in cabin group cohesion results.
2. Homogeneous grouping of students in groups according to social rank provides for a much greater opportunity for individuals of lower rank to win self esteem, within the limits of a camp setting that de-emphasizes competition between groups.
3. Heterogeneous grouping allows those who were the most popular to assume leadership and subsequently those of lower rank never have an opportunity to lead. Conversely, homogeneous grouping according to social rank provides an opportunity for students of low rank to assume leadership positions. In this setting students of the high constellation group must compete more vigorously for leadership positions. Consequently more conflict results in the high ranking group.
4. Cross-sex choices increased substantiating Stack's

study (4), who found that after camp a greater choice was made by campers for the opposite sex. This factor can be conditioned as evidenced in contrasting the two camps.

When co-educational activities were sponsored, the cross-sex choices increased, when these were limited the cross-sex choices were reduced.

5. As a child rises in social rank he drops those students who were friends below him and chooses friends from his own level or above. In the first camp leaders extended choices to other cabin group leaders.
6. When students are placed together by random selection, isolates and neglectees increase, but when students are placed according to social rank into homogeneous groups, the isolates and neglectees are reduced.
7. Students of low social rank, according to the data, have as high scores on social development scales as the people of high social rank. In competition people of low social rank have a greater awareness of the expectations of society than those of high rank.
8. Stack (4), Whitaker (5:152-160) and Davis (6:305-313) in their studies have concluded that an increase in "numbers chosen" indicates an improved state in the child's social growth. The experimenter of this study concludes that only students dropping in social rank or who are new to a group make a wide variety of choices. This is done

because of a lack of security in their association with their peers. Therefore, those who limit their choices to a smaller group are those who feel more secure with their peers.

Recommendations

1. That the Department of Education of the Province of Alberta in conjunction with the University of Alberta, Edmonton, and the University of Calgary, conduct a pilot project in school camping for a period of not less than 5 years, in order to substantiate the data obtained in this and other studies as to the values of Outdoor Education as an educational experience.
2. That the scales developed in this study be used with a random sample and that the sample participate in the experiment for a period of two weeks.
3. That a critical evaluation of the teaching approach, and methods used be kept for each camp to ascertain what improvements could be instituted to obtain the best results from the experience.
4. Application of tests to other sample groups:
 - a) Since pre-camp motivation may have raised the pre-test mean to an average of 3.3 in the 1965 camp, it is recommended that pre-tests on attitude be given before the group suspects they will be attending an outdoor camp.
 - b) That further scales be constructed in order that all aspects of the camp be measured and the cumulative results collated.

- c) Control groups be used to determine the difference in attitude of students who did not attend the school camp and those who had the experience.

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A P P E N D I C E S

APPENDIX A

LIABILITY FORM FOR SCHOOL BOARD

FORM I

CALGARY SCHOOL BOARDAUTHORIZATION AND RELEASE OF LIABILITY

I, _____ of the City of

Calgary, in the Province of Alberta, do hereby grant permis-

sion for my child or ward _____

to travel to _____

leaving date _____ returning date _____

for the purpose of _____

under the general supervision of _____

In case of accident to my said child or ward, I hereby coven-
ant and agree that no action for recovery of loss or damages
resulting therefrom will be taken against the Calgary School
Board or any of its teachers or officials.

Date _____

Signatures of Parents or
Guardians.

APPENDIX B

HEALTH FORM FOR SCHOOL BOARD

FORM II

HEALTH FORM - OUTDOOR EDUCATION PROJECT

Please fill in this record as accurately and neatly as you can for your son or daughter. It will be on hand at the camp for our immediate referral should an emergency or mishap occur.

PUPIL'S NAME _____ AGE _____

ADDRESS _____ TELEPHONE _____

NAME OF PARENT _____ ADDRESS _____

NAME OF FAMILY DOCTOR _____ TELEPHONE _____

1. ANY FOOD ALLERGY (WHAT?) _____

2. HAS BEEN RECENTLY EXPOSED TO ANY COMMUNICABLE DISEASE?

(YES OR NO) _____

3. SHOULD TAKE MEDICINE REGULARLY? FOR WHAT? WHAT MEDICINE?

4. ENURESIS (BED WETTING) ANY RECORD OF THIS AT HOME? _____

5. NERVOUS HABITS (WHAT?) _____

6. PARTICULAR FEARS (WHAT?) _____

7. ANY OTHER HELPFUL INFORMATION? _____

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APPENDIX C

CLOTHING AND SUPPLY LIST

COLONEL WALKER SCHOOLGRADE VI CLASS -EI"OUTDOOR EDUCATION" - JUNE 15 - 19, 1964KIWANIS CAMP - CALGARYCLOTHING AND SUPPLIES

4 wool blankets (or sleeping bag)	2 long-sleeved shirts or blouses
1 pillow	1 T-shirt
2 pillow cases (or 1 case and dirty clothes bag)	1 warm sweater
4 towels	1 warm jacket
1 washcloth	1 cap or hat
Toothbrush and paste	Rubber boots or rubbers
Hairbrush and/or comb	Boots or shoes (1 pair)
Kleenex	Running shoes
Shower cap (girls only)	1 raincoat
Warm pyjamas (1 pair)	2 underwear changes
1 free reading book	5 pr. socks
2 pencils, 1 pen, eraser	2 pair jeans or slacks (1 pair shorts)

1 suitcase

N.B. Name tag or tape should be placed on all personal property,
including clothing and bedding.

Handy Items - flashlight, camera

APPENDIX D

SAMPLE SCHEDULE

PLANNED SCHEDULE
(morning)

CAMP TIME	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
6:45 a.m.		Boys' Shower	Girls' Shower	Boys' Shower	Girls' Shower	Boys' Shower
7:15 a.m.		Girls' Shower	Boys' Shower	Girls' Shower	Boys' Shower	Girls' Shower
7:50 a.m.		Flag Raising	Flag Raising	Flag Raising	Flag Raising	Flag Raising
8:00 a.m.		Breakfast	Breakfast	Breakfast	Breakfast	Breakfast
8:30 a.m.		Clean Cabins	Clean Cabins	Clean Cabins	Clean Cabins	Clean Cabins
9:00 a.m.	Arrival-Unpack	Inspection	Inspection	Inspection	Inspection	Camp Clean-Up
9:30 a.m.	Make Beds	Animals	Insects -	Meteorology	Map Reading	Pack
10:00 a.m.	Regulations- Routines	(Mammals)	Lecture	Birds Session	Compass	Return Home
10:30 a.m.	Tour of Camp	Meteorology	Observation			
11:00 a.m.	Cabin	Campcraft(fires & Knives)	Collection			
11:30 a.m.	Inspection	Lunch	Lunch	Lunch	Lunch	
12:00 a.m.	Lunch					
	Presentation of Inspection Award-Songs					
12:30 a.m.		Inspection Award-Song	Inspection Award-Song	Inspection Award-Song	Inspection Award-Song	

...continued

PLANNED SCHEDULE (...continued)
(afternoon)

CAMP TIME	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
1:00 p.m.	Rest	Rest	Rest & letter Home	Rest - Project Plan	Rest
1:30 p.m.	Topography Session				
2:00 p.m.	Workbooks	Fish and Pond life	Hike to Pioneer Flowers Missionary Monument		Workbook Session All phases Completed
2:30 p.m.	Recess				
3:00 p.m.	Trees and Conservation	Dairy Farm & Pioneer Life		Dairy Farm & Pioneer Life	
3:30 p.m.					
4:00 p.m.	Workbooks				
4:30 p.m.	Games				
5:00 p.m.					
5:30 p.m.	Supper	Supper	Supper on The trail	Supper	Skit Preparation Supper
6:00 p.m.		Skit Planning			Free Time
6:30 p.m.	Meteorology Class	Games - Fire-Lighting Relays			
7:00 p.m.			Watch beavers	Campcraft-Shelters & Knots	
7:30 p.m.	Torch Procession and Chapel Service	Campfire Program	Return to Camp		Closing Ceremonies
8:00 p.m.				Campfire songs	Awards - Skits Songs (Parents Welcome) Lights out
8:30 p.m.	Indian lore				
10:00 p.m.	Lights out	Lights out	Lights out	Lights out	

APPENDIX E

CAMP SONGS AND GRACES

GRACES FOR TABLE AND COOK-OUTS

For health and strength and daily food
 We give Thee thanks, O Lord.
 For Fellowship and Brotherhood
 We praise Thy name, O Lord.
 Amen.

Johnny Appleseed Grace
 O, the Lord is good to me
 And so I thank the Lord
 For giving me the things I need
 The sun and rain and the appleseed
 The Lord is good to me.
 Amen.

We thank Thee, Father, for Thy care,
 And for Thy bounty everywhere.
 For this and every other gift
 Our grateful hearts to Thee we lift.
 Amen.

Father in heaven we thank Thee in song
 For Thy great bounty
 Hear our request;
 Bless Thou this food and for Thee
 Make us strong;
 Be Thou our unseen guest.
 Amen.

Be present here, most Gracious God,
 From whom all goodness springs.
 Make clean our hearts, and feed our
 Soul on good and joyful things.
 Amen.

The Following Songs Were Sung by the Children At Camp.

1. All You Etta.
2. Don't Fence Me In.
3. Shenandoah.
4. Vive L'amour.
5. So Long.
6. The Happy Wanderer.
7. Tell Me Why.
8. The Ants.
9. Land of the Silver Birch.
10. The Bible Tells Me So.
11. It Is No Secret.
12. The Blue Canadian Rockies.
13. The Place Where I Worship.
14. How Great Thou Art.
15. North to Alaska.
16. Clementine.
17. There's a Long Long Trail
A-Winding.
18. The Blue Tail Fly.
19. A Smile
(Tune - John Brown)
20. Ed - Out Song 1964
(Tune - Blowing In the Wind)
21. Ed - Out Song 1965
(Tune - Yellow Rose of Texas)

ED - OUT SONG 1964

(Tune - "Blowing in the Wind")

1. How many roads must we walk down,
Before we are part of this land?
Yes, and how much friendship must we have,
Before we belong to this Band?
Yes, and how must we care for each other here,
Before we can call this our camp?
The answer, my friend, is to give to the end.
The answer, to give to the end.
2. How many years can this spirit exist,
Before it is part of our lives?
Yes, and how much strength will it give to our friends,
So the glow of our effort survives?
Yes, and how far must we carry this gift,
Before world peace is derived?
The answer, my friend, it will last to the end,
If only we give to the end.

ED - OUT SONG 1965

(Tune - "Yellow Rose of Texas")

1. Oh! we're the happy boys and girls
From Colonel Walker School.
We're following the footsteps
Of last year's "Pioneers".
To go to school in the great outdoors
Has been our shining goal
To meet all the objectives
We each must play a role.
2. To live and work together
In our little groups each day
Guided by our counsellors
We love, trust and obey.
The beauties, Mother Nature
Holds dear for us to see
Remember "Conservation"
Wherever you may be.
3. In the years that are to follow
Our memories will turn
To all the gracious people
Who helped us as we learned.
These are the things that Ed-Out
Will always mean to me
Sincerity and Honesty,
A faithful friend, I'll be.

APPENDIX F

EDUCATIONAL MATERIALS

COMMON ORDERS OF INSECTS

1. Orthoptera
(straight wings)
 - grasshoppers, locusts, crickets
 - usually two pairs of wings - some crickets are wingless
 - antennae - long and slender
 - grasshoppers - locusts - are pests
2. Hemiptera
(half-wings or different wings)
(membranous)
 - aphids - leaf hoppers
 - these insects feed on plant juices
 - aphids are plant lice - injurious to trees and plants
 - they are borne by the wind for miles
 - it defends itself by smearing a gummy wax on its attacker
3. Diptera
(two wings)
 - flies, mosquitoes
 - mouth parts are adapted for sucking, lapping and piercing
 - the female mosquitoes are capable of piercing the skin and sucking the blood of man
 - the housefly is a real pest to man
4. Odonata
(toothed)
 - dragonflies (devil's darning needle)
 - damselflies
 - long, slender abdomen
 - front and hind wings similar in shape
 - chief food is mosquitoes, small insects
 - legs are covered with hair
 - each eye has 30,000 tiny eyes
 - they are really a friend to man
5. Lepidoptera
(scaly wings)
 - butterflies, moths
 - (butterflies have slender bodies (they fold their wings when at rest (life cycle is four stages (knobs on feelers or antennae (butterflies are active in daylight hours
 - (moths have thicker bodies (moths are nocturnal in their habits

- 6. Coleoptera
 (sheath-wings)
 - beetles - lady bugs
 - the mouth parts are manibulate,
 but some snout beetles have a
 piercing beak
 - many bore into wood in the larval
 stage
- 7. Hymenoptera
 - bees - wasps - ants
 - mouth parts are adapted for lap-
 ping liquids
 - highly developed social insects
 - bees carry pollen - a friend to
 plants and man

BIRDS OF THE CAMP AREA

As there are a great many different kinds of birds which could be found in this area, it would take too long to describe every one of them. We will therefore deal with the more common ones which are most likely to be seen. The following points will be given for each bird during the talk: size, color of male and female (if different), location of nest, food.

DUCKS

Mallard
Pintail
Blue-winged Teal
Shoveller
Common Golden-eye

WADERS

Great Blue Heron
Wilson's Phalarope
Killdeer Plover
Spotted Sandpiper

GROUSE AND DOVES

Ruffed Grouse
Mourning Dove

HAWKS

Goshawk
Red-tailed Hawk
Sparrow Hawk

OWLS

Long-eared Owl
Saw-whet Owl
Great-horned Owl

KINGFISHERS

Belted Kingfisher

WOODPECKERS

Downy Woodpecker
Flicker

NIGHTHAWK

Nighthawk

FLYCATCHERS

Kingbird
Alder Flycatcher

CROWS AND JAYS

Crow
Magpie

BLACKBIRDS AND ORIOLES

Red-winged Blackbird
Brewer's Blackbird
Cowbird
Starling
Baltimore Oriole
Meadowlark

FINCHES AND SPARROWS

Goldfinch
Pine Siskin
Common House Sparrow
Slate-colored Junco
Vesper Sparrow
White-crowned Sparrow

SWALLOWS, WAXWINGS, AND SHRIKES

Cedar Waxwing
 Loggerhead Shrike
 Barn Swallow
 Cliff Swallow

CHICKADEES, NUTHATCHES, KINGLETS, AND THRUSHES

Black-capped Chickadee
 Red-breasted Nuthatch
 Ruby-crowned Kinglet
 Robin
 Hermit Thrush
 Catbird
 Western Bluebird

MAMMALS OF THE CAMP AREA

All living things are divided into two large groups. These are the Plant Kingdom and the Animal Kingdom. The Animal Kingdom is divided into smaller groups which are called Classes - these are Mammals, Birds, Fish, Reptiles, Amphibians, Insects and many more. Today we will talk about Mammals, especially the ones in the Camp area.

Mammals are different from other animals in many ways and they alone have all of the following characters combined:

1. Warm blooded.
2. Body covered or partly covered with hair.
3. Feed their babies on milk made by the mother.

Mammals of all kinds are again divided into smaller groups called Orders. These groups are: Insect eaters, Meat eaters, and Plant eaters of which some are Hooved Plant Eaters and others are Rodents or Gnawing mammals. All of the following mammals may be found in the Camp area, but not all which may be found are mentioned. This would take too much time.

INSECT EATERS

Masked Shrew

- the size of a small mouse with grayish-brown fur.
- found under rotten logs, tree stumps, in moist areas.
- very common.

Little Brown Bat

- bats are the only mammals that fly.
- they use a form of radar to find their way about and catch flying insects.
- very common, mouse-size body.

MEAT EATERS

Black Bear

- about five feet long and weighs around three hundred pounds.
- smallest of our bears and can climb trees well.
- color may be brown, cinnamon or black.
- most live in mountains but could be found this far east.
- in certain seasons they eat a lot of berries and shoots.

Raccoon

- about the size of a large house cat.
- brownish-gray with a black face mask and a black ringed tail.
- not common but could be in the area.

Short-tailed Weasel

- size of a gopher but much thinner.
- rusty red on the back and white on belly and feet.
- very common, feeds largely on mice and ground squirrels.

Mink

- twice as big as the Short-tailed Weasel.
- dark chocolate brown fur.
- not often seen but fairly common. Near water (lakes and streams).

Striped Skunk

- same size as Raccoon.
- black fur with white stripes running from head to tail.
- very common, feeds on mice, some insects, bird eggs.
- very tame but do not get closer than thirty feet.

Coyote

- half the size of a German Shepherd or "Police" dog.
- yellowish gray fur.
- very common, feeds on mice, ground squirrels and some birds.

Lynx

- a little bigger than a coyote.
- gray fur.
- lives mainly in the mountains but comes down into the prairies when the Snowshoe Rabbits which it feeds on are in short supply. There was a large invasion of lynx in Calgary last winter.

GNAWING MAMMALS - RODENTS

Pocket Gopher

- three times as big as a mouse.
- sandy brown fur, lives in tunnels under the ground, and only comes out at night. Brings large amounts of dirt up to the surface making little "hills" all over a field.
- most people call this mammal a "mole" by mistake, there are no moles in Alberta.
- stores food for short periods in cheek pouches. This is why it is called a "pocket" gopher.

Richardson Ground Squirrel

- about seven inches long, most of you have seen this mammal.
- sandy brown fur, also lives in tunnels under the ground, but comes out only in the daytime.
- most people call it a "gopher" by mistake, the real gopher in Alberta is the one mentioned above. Very common.

Least Chipmunk

- size of a large mouse.
- reddish-brown fur with black and white stripes on face and body, runs with tail held straight up in the air.

Red Squirrel

- size of a Richardson Ground Squirrel.
- back is red and belly is whitish.
- lives in evergreen trees, has a chattering call.

Northern Flying Squirrel

- a little smaller than the Red Squirrel.
- brown or gray and white belly.
- hides in holes in trees during the day but comes out to feed at night.

- this is the only squirrel to be active at night.
- there are folds of skin along the side of the body between the front and back legs. These are spread out when the mammal jumps off a tree and it glides downward to another tree. They do not fly like a bat as they have no real wings to flap.

Deer Mouse

- size of a house mouse.
- brown or reddish back with white belly and feet.
- very common.

Bush-tailed Woodrat

- about the size of a Richardson Ground Squirrel.
- pale gray or blackish back with white belly and feet.
- commonly called "Packrat" because of its habit of taking small articles to its nest, sometimes leaving an exchange.

Beaver

- rich brown fur, scaly tail shaped like a paddle.
- grow up to a length of three to four feet, weight up to 60 lbs.
- largest North American rodent, builds dams across streams and constructs cone-shaped houses in the small lake formed by dam. It cuts trees down with chisel-like teeth. Feeds on the bark and tender twigs. Takes a supply of branches to the bottom of its lake for winter food under the ice.

Porcupine

- larger than a big cat.
- body covered with silvery black quills.
- very common, found often up in trees where it feeds on bark.

Snowshoe or Varying Hare

- size of cat minus tail.
- reddish brown in summer changing to pure white in winter.
- very large feet enable it to run over snow without sinking.
- mistakenly called "rabbit", there are no true wild rabbits in this part of Alberta.

PLANT EATERS - HOOVED MAMMALS

Mule Deer

- three feet high at the shoulder, weight of up to two hundred lbs.
- reddish brown in summer and blue-gray in winter.
- large mule-like ears, white tail tipped with black, held down when running.
- very common.

White-tail Deer

- about the same size as Mule Deer.
- shows much more red in fur summer and winter than Mule Deer.
- tail is same color as body on top but is pure white below - this deer raises its tail when running, waving it like a flag.
- becoming more common every year.

There will be five or six caged small mammals included with this talk as well as a number of colored pictures.

TOPOGRAPHY

OUTDOOR EDUCATION PROJECT

June 14, 1965 - 3 p.m.

DEFINITIONS

Topography

- graphic delineation of the physical feature of a place or region on maps or charts. We will be concerned with differences in elevation shown by contour lines, drainage systems, mountains, lakes, swamps and cliffs. Cultural features such as roads will be noted. In our outdoor observations we will note land forms such as hills, cut-banks, etc., and also the forces of nature which carve the earth into the different land forms.

Orographic movement

- the changing of the earth's surface as evidenced by the lifting up of mountains.

Contour lines

- lines on a map which follow the same elevation or height above sea level.

What Causes Mountains and Valleys?

Geologists are not agreed on the cause of volcanoes and earthquakes, but we do know that there are forces at work which are constantly changing the surface of the earth. We know that the tops of the Rocky Mountains, which we can see to the West, were once part of the floor of an ocean. They were lifted up by orographic movement.

There are two opposing forces which make up our land forms and the physical features which we see about us: (1) the orographic force which lifts parts of the earth's surface above the rest, and (2) the erosive forces which level the earth, that is, wear the high parts down.

These erosive factors are:

- | | | |
|------------|---|--------------------------------|
| 1. Wind |) | |
| 2. Water |) | all coupled with the forces of |
| 3. Man |) | gravity |
| 4. Animals |) | |

While these erosive factors are tearing at the earth's surface, nature is also trying to stabilize it. This factor of stabilization is the vegetative cover, i.e. the trees, the grass, and all plants.

Of all forces which affect the earth's surface, water is the most important. Its ability to carve the earth's surface becomes greater with increase in elevation. Let us look at the map of the Elbow River to see the difference between tops of the mountains where the Elbow River begins and our camp. (Mount Rae, 10,560 ft. — Kamp Kiwanis, 3,975 ft., — difference 6,585 ft. This is a river distance of about 45 miles and therefore the fall is about 150 feet per mile.) Would you think this would give the Elbow River and its tributaries power to change the earth's surface? Compare this to what you know of the topography between here and Elbow Falls.

Map Study

See Calgary topography sheet 82 0/1, West Half.

Things to locate:

1. Contour lines,
2. The elevation of this camp,
3. A prominent hill which we can see from here.
4. A lake,
5. A gravel bar or flat,
6. A swamp,
7. A steep bank.

Outdoor Study

Make a list of the land forms or physical features which we see and any evidence of present-day changing of the earth by water or other forces.

WEATHER

No matter what occupation or profession you decide to follow as your lifetime career, you will always have an interest in the weather, or as it is called by men of science, "meteorology". Many of the things you learn in this section of your Natural Science Work Book will be of use to you throughout your life.

Weather is a subject of never-ending interest and conversation. Who can fail to be thrilled by the magnificent pageantry of the clouds, or the wonderful colourings of sunsets and other sky phenomena?

But there is also the practical side, for weather has a very great influence on industry and health. It is, perhaps, surprising to find that almost every industry is so much affected by it. Agriculture, shipping, aviation, and all kinds of transport, are dependent on weather conditions. In the business world, temperature and humidity will affect such things as the control of air-conditioning plants, the making of stencils for typewriters, food supplies to restaurants, and so on. Ice cream companies call for weather forecasts to determine their day-to-day production; building firms and contractors, fuel companies, and departmental stores all need weather reports for the successful operation of their businesses.

Today the science of weather-meteorology is used to make our lives safer and better. Some types of forecasts are 95 percent accurate. Storms are tracked and warnings are given; clouds are being seeded to cause rainfall where it is needed, and a network of weather stations enables planes to fly safely. A continued programme of research reveals more and more about the weather. This introduction to weather will help you to understand it more completely.

WHAT MAKES THE WEATHER?

Weather is the condition of the atmosphere in terms of heat, pressure, wind, and moisture. These are the elements of which the weather is made. Where the atmosphere thins to nothingness, there is no weather. For example, there is no weather on the moon, for it has no atmosphere, but near the surface of the earth, the atmosphere is dense and heavy. Here, in the lower atmosphere, one can continually see the everchanging, dramatic, and often violent, weather-show.

But it takes more than air to make weather. If the earth's atmosphere were never heated, mixed, or moved about, there would be no weather — or, more exactly, there would be no changes in the weather. There would be no winds, no changes in air pressure, no storms, rain, or snow.

Heat is the spoon that mixes that atmosphere to make weather, since all weather changes are brought about by temperature changes in different parts of the atmosphere.

THE SUN

The source of most of the earth's heat, the sun, is a ball of glowing gases, 93 million miles away from earth. This gigantic atomic furnace bombards the earth with 126 trillion horsepower every second, yet this vast energy is but a half of one-billionth of the sun's total output. Most of this solar energy is lost in space; traces reach other planets. The sun's energy is transmitted as waves that are similar to radio waves; some of these are visible light waves while others are invisible. About $\frac{4}{10}$ of the radiation reaching our planet is absorbed by objects such as soil or our bodies and is changed to heat while the rest stays in the atmosphere or is reflected into space.

Student's Diagram
of the sun

WATER IN THE ATMOSPHERE

Water is always present in the air and exists there in three states; solid, liquid, and invisible vapour. It continually evaporates from the earth's surface, of which $\frac{3}{4}$ is covered with water.

The amount of water vapour in the air is called the "humidity". The "relative humidity" is the amount of vapour, that the air is holding, expressed as a percentage of the amount that the air could hold at that particular temperature.

EVAPORATION

Heat evaporates millions of tons of water into the air daily. Lakes, streams, and oceans send up a steady invisible stream of water vapour into the atmosphere. An amazing amount of water transpires from the leaves of green plants; a single apple tree may move ten gallons of water into the air in a single day.

Student's Diagram
of Evaporation

As moist warm air rises, it slowly cools until finally its relative humidity reaches 100 percent. Clouds then form and under certain conditions, rain or snow descends back to earth. This eternal process of evaporation, condensation, and precipitation is called the "water cycle".

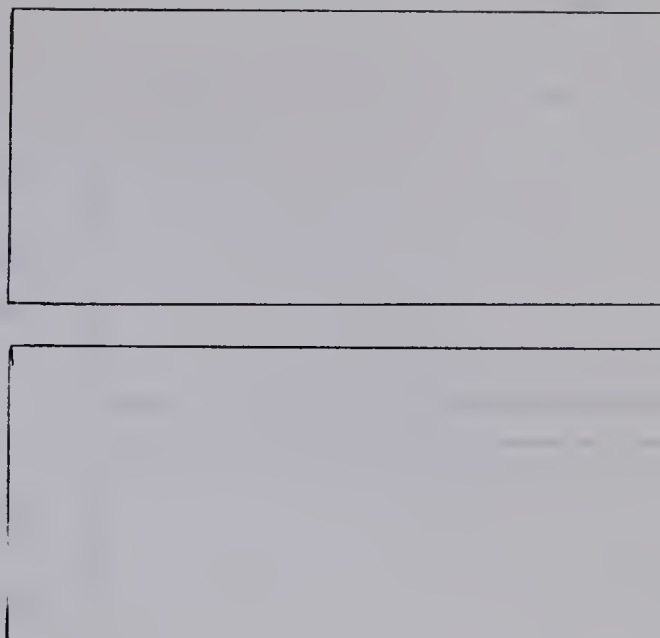
HOW CLOUDS ARE FORMED

When air is cooled below its saturation point the water vapour in it condenses to form clouds. When water vapour at a teakettle spout is cooled by the air around it, a small cloud forms in a similar fashion; your warm moist breath forms a miniature cloud when it hits the cold winter air. The clouds you see nearly every day form in several ways, but all form by the same general process, the cooling of air below its saturation point. The following five descriptions are ways in which some types of clouds are formed:

- (1) Earth radiates heat rapidly on clear nights, thus air in contact with cold earth may cool below its saturation point and form low clouds or fog (a cloud on the ground).
- (2) Warm air may move over a cold surface and be cooled below its saturation point; so clouds may form as warm lake or ocean air moves in over a cooler land surface.
- (3) Warm air is often lifted by a heavier mass of cold air which pushes under it like a wedge. Clouds will then form as warm air cools below its saturation point.

Diagram of how the
clouds are formed

- (4) Air may be heated by contact with the earth's warm surface. It then expands, becomes lighter, and rises, since the expansion lowers its temperature. The more it rises, the more it cools — at a rate of about 5 degrees F. for each 1,000 ft. of rise.
- (5) Air moving up a slope loses heat as it rises and if it rises enough to cool below its saturation point, clouds will form.



CLOUD CLASSIFICATION

For a long time, long after all the heavenly bodies and the stars, were named, the clouds remained nameless. People would describe a cloud as a "woolpack" or "witch's broom" or "a mare's tail" or "fish scales" or "a mackerel sky" or "a riffle cloud". These and many other nicknames were used to describe different kinds of clouds.

At the beginning of the nineteenth century an Englishman, Luke Howard, divided the clouds into four types and named them:

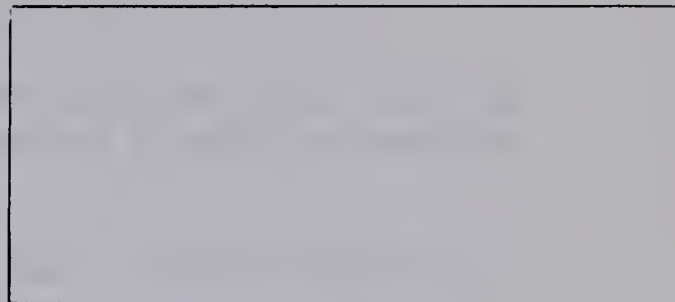
- (1) Curled or tufted clouds — the highest of all clouds commonly called "mare's tail" or "witch's brooms".
- (2) Clouds in heaps — the billowy masses which are commonly called "woolpacks".
- (3) Flat clouds — which cover the sky like a low-hanging, gray blanket, called a "layer cloud".
- (4) Rain clouds — dark and threatening.

Of course, he named them in Latin. He called them: (1) Cirrus; (2) Cumulus; (3) Stratus; and (4) Nimbus. We now recognize many different types of clouds, and all, of course, have Latin names and are combinations of the four main types.

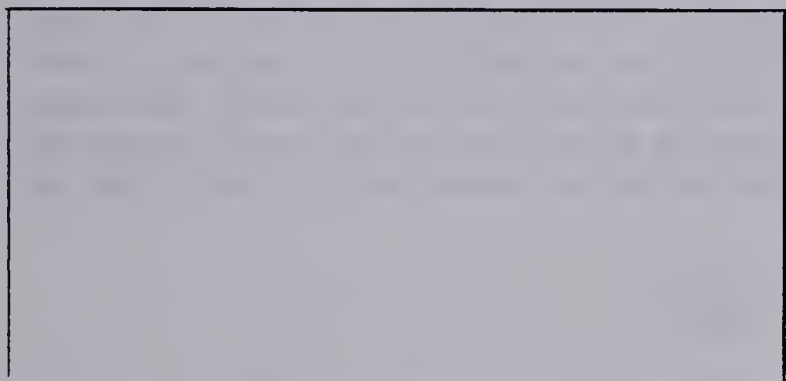
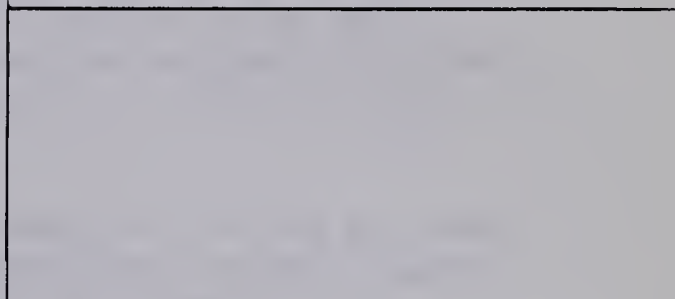
Since the names of clouds are descriptive of their type and form, the word "nimbus", meaning rain cloud, is added to the names of clouds which typically produce rain or snow. The prefix "fracto", meaning fragment, is added to names of wind-blown clouds that are broken into pieces. "Alto", meaning high, is used to indicate middle-layer clouds of either stratus or cumulus types.

CLOUD TYPES

Cirrus clouds, thin, wispy, and feathery, are composed entirely of ice crystals. They usually form at 25,000 ft. and above, where the temperature is always far below freezing

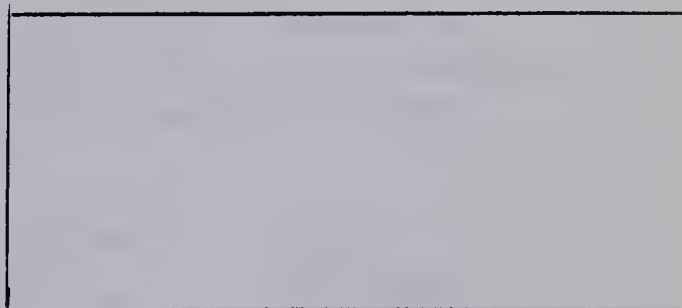


Stratus is a low, quite uniform sheet, like a fog, with the base above the ground. Dull-gray stratus clouds usually make a heavy leaden sky, and only fine drizzle can fall from true stratus clouds, because there is little or no vertical movement in them.



Cumulus are puffy, cauliflower-like, and their shapes constantly change. Over land, cumulus usually form by day in rising, warm air, and disappear at night. They indicate fair weather unless they pile up into cumulonimbus.

Nimbus are the true rain clouds, and being darker than ordinary clouds, they have a menacing look. In their most violent form, these clouds produce tornadoes.

PROJECT:

Draw the cloud types in the rectangles.

WHAT MAKES IT RAIN?

Precipitation such as rain, snow, sleet, and hail can occur only if there are clouds in the sky, but not all types of clouds can produce precipitation.

Rain falls from clouds for the same reason that anything falls to earth: the earth's gravity pulls it. But every cloud is made of water droplets or ice crystals. Why doesn't rain or snow fall constantly from all clouds? The droplets and ice crystals in clouds are exceedingly small; thus the effect of gravity on them is very little.

Droplets and ice crystals behave somewhat like dust in the air made visible in a shaft of sunlight, but dust particles are much larger than water droplets, and they finally fall. An average cloud droplet is only $1/2500$ inch in diameter and can only fall to earth when it grows to a diameter of $1/125$ inch or larger. The average raindrop contains a million times as much water as a tiny cloud droplet; thus the growth of a cloud droplet to a size large enough to fall out is the cause of rain and other forms of precipitation.

WINDS

Anyone who understands the winds has a key to the weather. For example, the faster the wind blows, the sooner we will have a change in the weather. Wind is air moving. Air is always moving, but not always at the same speed and from the same direction. Anyone can learn to recognize a wind by learning how fast it is blowing, without instruments such as an anemometer. In fact all you need is keen eyesight and a chart such as the one below.

<u>Signs</u>	<u>Description of Wind</u>	<u>Miles Per Hour</u>
Smoke rises straight up. Flag wavers slightly.	Calm	less than 1
Leaves on trees don't rustle. Flag out $1/4$ from pole.	Light Air	1 - 3
Leaves rustle. Flag outstretched $1/2$ from pole.	Light breeze	4 - 7
Wind extends flag $3/4$ way out. Leaves and twigs in motion.	Gentle breeze	8 - 12

<u>Signs</u>	<u>Description of Wind</u>	<u>Miles Per Hour</u>
Dust and papers raised. Flag fully extended.	Moderate breeze	13 - 18
Small trees swaying	Brisk breeze	19 - 24
Large branches in motion. Telegraph wires whistle.	Strong breeze	25 - 31
Whole trees in motion. Diffi- cult to walk against wind.	Moderate gale	32 - 38
Breaks twigs off branches. Whistling heard all around.	Fresh gale	39 - 46
Signs torn down. Impossible to walk against wind.	Strong gale	47 - 54
Trees uprooted. Roofs torn off.	Whole gale	55 - 63
Widespread damage	Storm	64 - 75
Extreme damage. Countryside devastated.	Hurricane	Above 75

FORECASTS FROM OBSERVATIONS

Most weather lore comes from farmers, hunters, and sailors - people most concerned with the weather. Many weather sayings have some truth in them - for wisdom accumulated as people gained experience, even before the reasons behind the facts were discovered.

Weather signs have some prediction value if you know the atmospheric conditions they indicate. It is interesting to collect local weather signs and lore. If you can talk with "old-timers" long resident in your region, hear what they have to say and then examine these beliefs in the light of present-day meteorology.

Temperature Will Usually Rise When:

Wind is from south, particularly with cloud cover at night or clear sky during the day.

Weather Will Generally Clear When:

Bases of clouds show steady rise to higher types. The wind - particularly as east wind - shifts to the west. The barometer rises rapidly.

Weather Will Generally Remain Fair When:

The wind blows gently from west or northwest. Barometer remains steady or rises. Cumulus clouds dot the summer sky in the afternoon. Morning fog breaks or "burns off" by noon.

Rainy Weather or Snow May Come When:

The barometer falls steadily. Cirrus clouds thicken and are followed by lower clouds. There is a ring around the moon. Puffy cumulus clouds begin to develop vertically. Sky is dark and threatening to the west. Southerly or easterly wind increases in speed with clouds moving from west. The wind - particularly a north wind - shifts in a counter-clockwise direction (i.e. from N. to W. to S.).

FINDING ONE'S WAYINTRODUCTION

One finds his way in the out-of-doors by taking notice of the unique features in the environment around him, the tall tree in the distance, the mountain peak that looks like a chimney, the broken rock, the tumbling waterfall. Added to this, however, are two of the most important factors, the sun and the north star. Anywhere, anytime, if you know North, you can find the other directions easily. Face North and East is at your right, West is at your left, and South is back of you.

Now to find directions.

By the Sun: This gives you general directions not specific ones. In the morning the sun is in the EAST, in the afternoon in the WEST, at noon overhead slightly to the south.

By your Watch: This is more accurate.

1. Hold watch level in the sun.
2. Hold a twig or blade of grass over the center point of the watch so a shadow falls on the face.

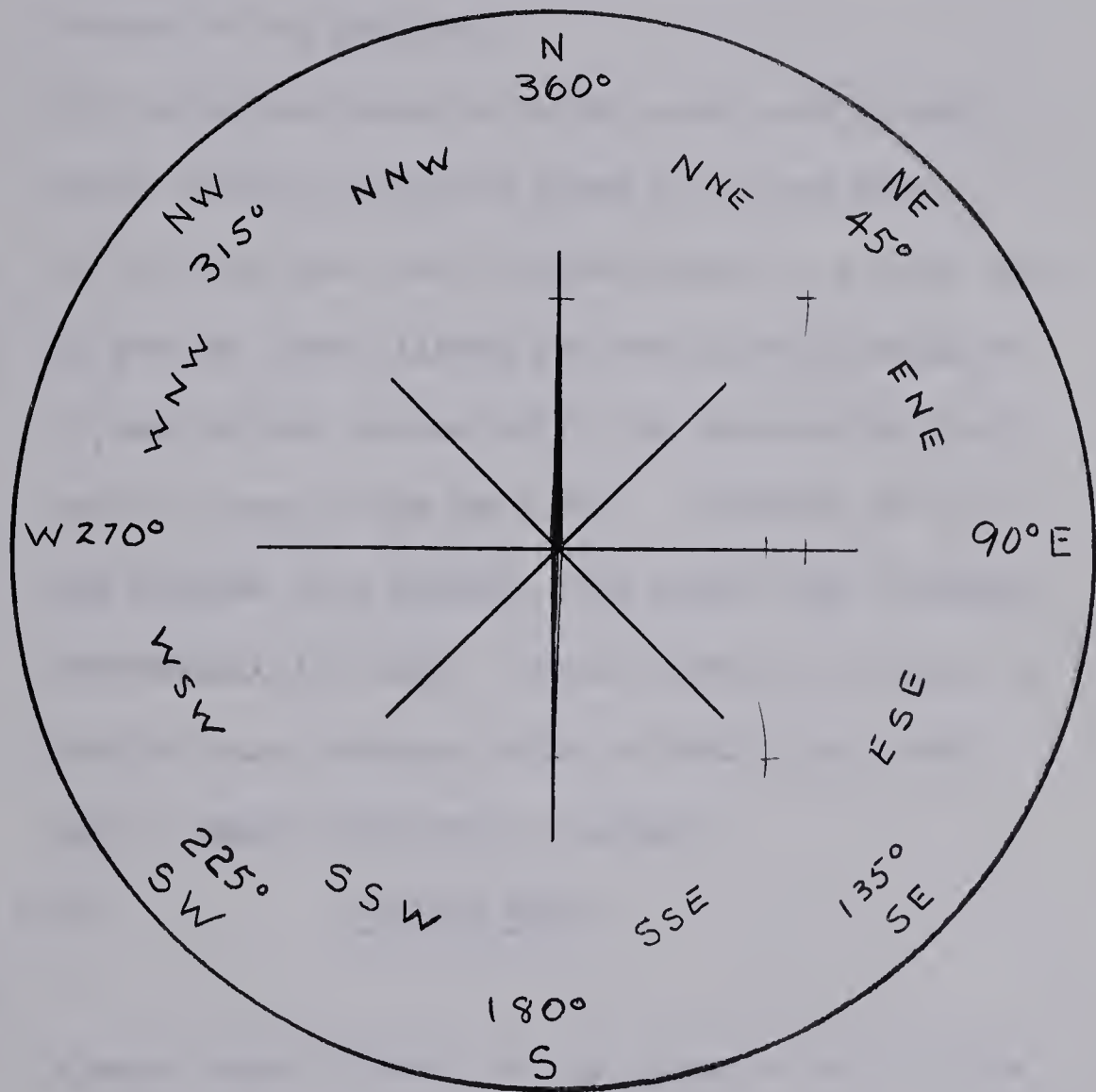
3. Slowly turn the watch until the shadow lies over the Hour Hand. North is the point halfway between the Hour Hand, as it then points and the twelve on the face of the watch. (going around the watch the shortest way - one way in the morning and the other way in the afternoon).

By the Stars: At night the North Star will tell you in what direction you will find North. Find the Big Dipper, take a direct line from the two stars on the lower lip of the dipper and follow it upward until you come to the North Star. Face it and you will find the other directions.

By a Compass: The compass needle always faces NORTH. Really this is magnetic north, but for now we will call magnetic north true NORTH. There are 360° on the compass face. North represents 360°, East 90°, South 180°, and West 270°. Look at the diagram to find them. The following directions should be observed in using the compass:

1. Hold the compass level.
2. Keep it away from any steel or iron objects.
3. When the needle is stabilized, swing the face of the compass around until the needle rests on N.
4. If you are using a Sylva Compass, then turn the bottom plate until the arrow faces the direction you are going.
5. Look at the gradations on the compass circumference and you will find the number of degrees that particular direction represents.

POINTS ON THE COMPASS



1. 310° _____
2. 210° _____
3. 348° _____
4. 50° _____
5. 111° _____

6. 9° _____
7. 97° _____
8. 249° _____
9. 186° _____
10. 125° _____

General Clues About Directions at the Camp Site:

1. The road runs to the North of the campsite.
2. The Elbow river runs in an arc to the west of the camp flowing under the bridge at the Northwest corner of the property.
3. The Robinsons' home is to the south and is only a short distance from the Elbow River and camp.
4. To the East the road circles around in a large arc.
5. If you get lost, listen for the Elbow River, go to it, and go down stream until you come to the trail back to camp, or the main road. REMEMBER IF YOU ARE WALKING IN A CIRCLE - SIT DOWN, MAKE YOURSELF COMFORTABLE AND WAIT. If you have the presence of mind to carry matches build a small fire - and make a smudge with moss or grass.

ROUTE III 1964

COMPASS WORKA. Rules

1. Always stand directly on the opposite side of the object sighted.
2. Feet should be apart and compass held level.
3. Person reading compass stand and direct partner to walk to designated spot.

B. Route

1. Start at gate post near swimming pool.
2. 43°NE - 63 paces - Spruce tree (Back to tree for next bearing),
3. 297°WNW - 60 paces - small cottonwood.
4. 257°WSW - 39 paces - small spruce. (For next reading stand with left shoulder to spruce.)
5. 12°NNE - small tree by fence post. (For next reading stand with right shoulder to spruce.)
6. 85°E - 35 paces - Big Cottonwood.
7. 126°SE - 75 paces - Small spruce.
8. 240°WSW - Large leaning cottonwood. Bring back object from this tree.

OUTDOOR EDUCATION PROJECT

Colonel Walker School: Sixth Grade Kiwanis Camp: June 15th - 20th

Campcrafts

A. FIRES:

The controlled use of fire has been an essential to the survival of man from the beginning of history. This ability to control fire and use its power to serve man was probably one of the greatest achievements of early man. Even in our modern society the uses of fire are many and varied. Apart from the uses in industry and in the home, the uses in the outdoors are obvious and, in some cases, essential for survival.

However, the power of fire is only too well known in its destructive capacity. Therefore an attempt will be made, in this section of your camp programme, to show you the correct and safe way to light and use a fire.

Uses in Camping:

- | | |
|-------------|---|
| 1. Cooking | - frying
- grilling
- roasting
- stewing
- foil cooking
- baking |
| 2. Warmth | - this is particularly important during the winter months. |
| 3. Drying | - drying of clothes is important from the health point of view. |
| 4. Pleasure | - just sitting around a campfire talking and singing is one of the more pleasant ways to spend an evening in the woods. |

Preparing to Light a Fire:

- | | |
|------------------|---|
| 1. Select a site | - should be on gravel or sand if possible.
- water should be available nearby.
- if no sand or gravel area is available, then the top layer of leaves, grass, and humus should be removed. The fire should be set on a soil base. |
|------------------|---|

2. Clear the area - a space of two to three feet should be cleared around the fire site. No leaves, twigs, or dry grass should be in this area.
3. Shovel & water - you should have a shovel and a bucket of water within easy reach, BEFORE you ever light the fire.
4. Snow cover -
 - remove the snow cover and set the fire on the ground.
 - if the snow is too deep, then set a small fire on a layer of green boughs.
 - do not light the fire under a tree or the heat will cause a slide of snow from the boughs of the tree.
5. Setting the fire -
 - a. Collect all necessary material before setting the fire.
 - b. Place some dry TINDER in the centre of the fireplace. Tinder could be dry grass, dry moss, paper, thin dry pieces of bark.
 - c. On top of the tinder place some fine twigs or kindling.
 - d. On top of the kindling place some slightly thicker pieces ($\frac{1}{2}$ to 1" thick).
 - e. Set the tinder on fire.
 - f. When the fire is going well, add some larger pieces of wood.

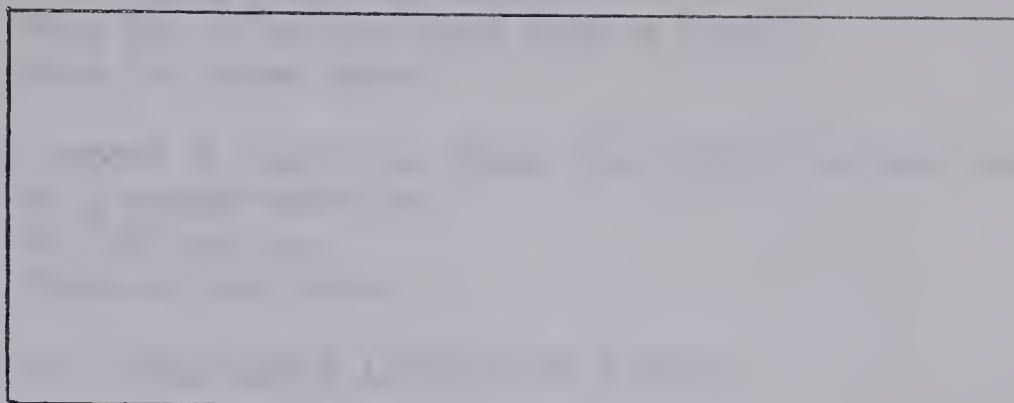
Note: When setting the fire form a mesh with the kindling and larger pieces of wood. This allows the flame to come up through the little pile of wood, and it has a better chance of catching. Use DRY material to start the fire.

Types of Fires:

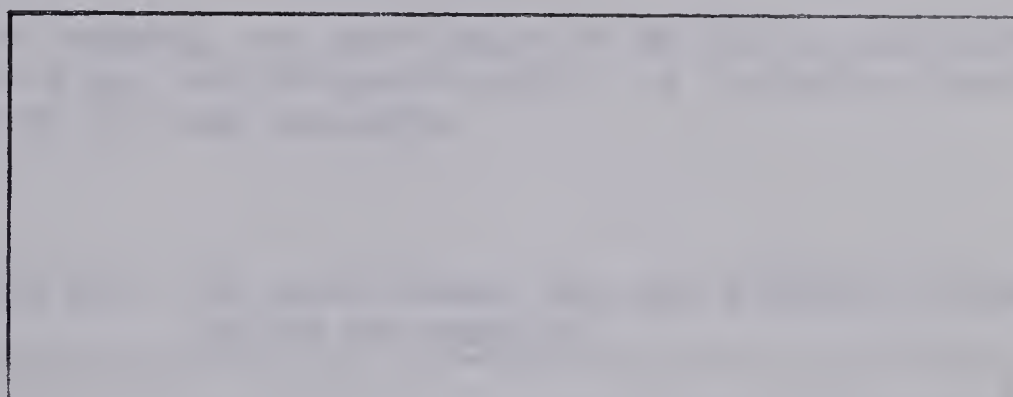
1. Tepee Fire:

Student's Diagrams

2. Pit or Trench Fire:



3. Reflection Fire:



Safety in the Use of Fire:

1. Clear the area surrounding the fire.
2. Have a shovel and some water within easy reach.
3. Do not light a fire on a surface of humus. Always dig onto a soil base.
4. Beware of wet rocks, because a fire will sometimes cause them to explode.
5. Never leave a fire unattended.
6. Never light a fire in a dry grass or brush area.
7. Always control the size of the fire. Never build a fire larger than you need.
8. Be aware of the wind direction and never build a fire so that sparks will be blown into a grass or brush area.

9. Always extinguish your fire properly: -
 - a. Thoroughly soak the entire fire area.
 - b. Turn the fire area over with a shovel.
 - c. Soak the area again.
10. Always report a forest or grass fire which you may see: -
 - a. To a ranger station.
 - b. Police station.
 - c. Nearest farm house.
11. NEVER USE INFLAMMABLE LIQUIDS ON A FIRE.

* * * * *

B. AXES AND KNIVES:

In outdoor camping, one must learn to use an axe and knife. However, these tools are very dangerous and it is therefore essential that you know how to use them properly.

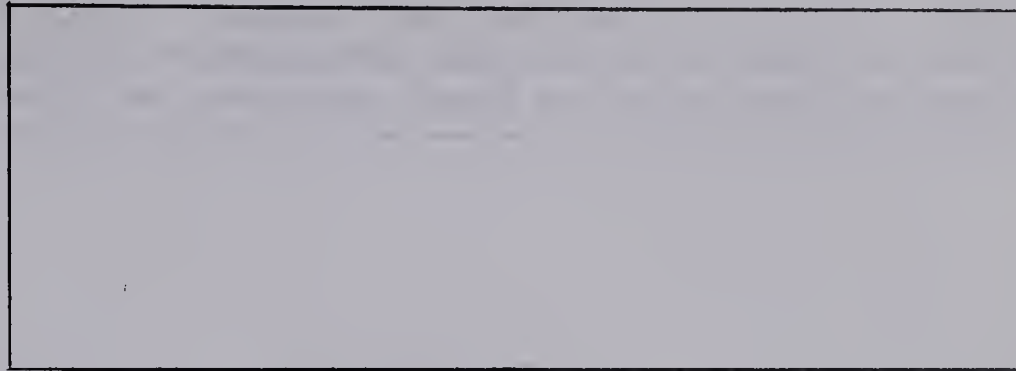
Types of Axes:

1. Felling axe - the most common type and probably the most useful for camping.

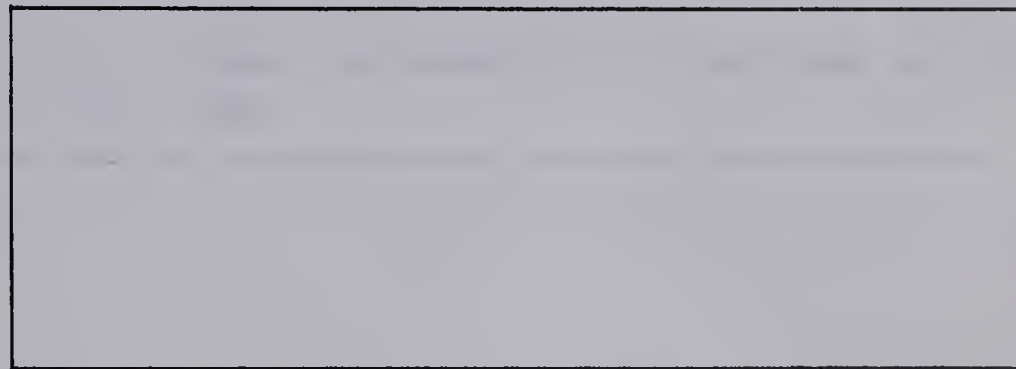
Student's Diagrams

2. Double bladed axe - used extensively by lumbermen.

3. Hudson Bay axe - similar to felling axe but with a heavier head and longer handle.



4. Hand axe - very useful around a camp site for splitting kindling and sharpening tent pegs.

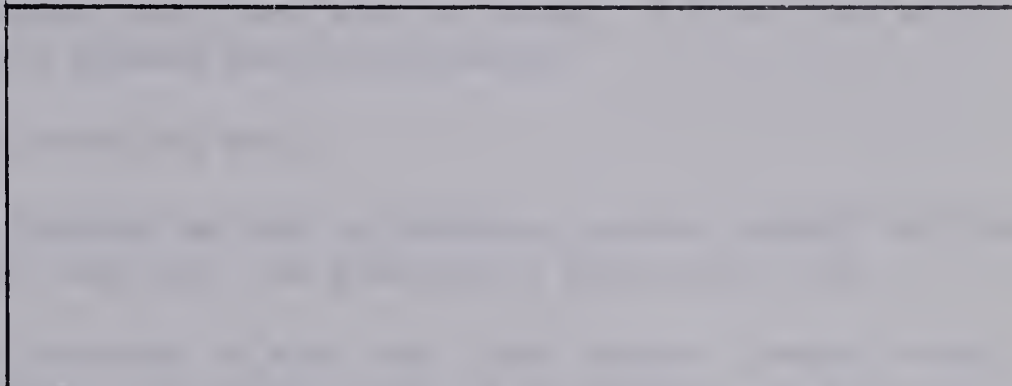


Care of the Axe:

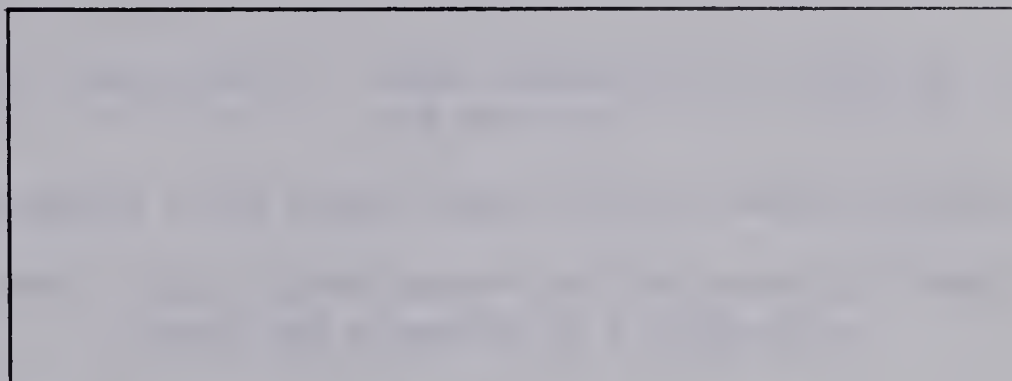
1. Use it only for the purpose for which it was intended. This is for cutting wood.
2. Do not split wood on the ground. Use a chopping block or log as a base.
3. Do not leave the axe outside overnight or the head will become rusty.
4. When storing the axe, lightly oil the head.
5. If the head becomes loose then it should be tightened before use. The head may be tightened temporarily by soaking it in water. To tighten the head permanently wedges should be used.
6. Linseed oil should be applied to the handle to prevent it from becoming dry and brittle.

Sharpening the Axe:

1. Use a log as a support for the head of the axe. The blade edge should be below the surface of the log, so that your hand will be protected should you slip during sharpening.



2. Use a file to take the shoulders off the blade and bring it to a fine edge.



3. Use a fine stone to complete the sharpening process. The stone should be wet either with water or oil. The stone should be moved with a circular motion along each side of the blade edge.

Safety when using axes:

1. Never be careless, always treat the axe with respect.
2. Be sure that no other person is standing behind, in front, or anywhere near-by.
3. Be sure that you have enough space in which to swing the axe. A serious accident may be caused by the axe hitting a limb of a tree, or some other obstruction, during the swing.
4. Be sure that, if you miss the piece of wood, the axe will not hit your foot.
5. Always check to see that the head is on firmly.
6. Always check to see that the handle is not split.

7. When splitting wood, never lift the axe with a piece of wood attached to the blade.
8. When splitting kindling, do not hold the piece of wood.
9. Make sure that your axe is sharp. A blunt axe will tend to bounce out of the wood.
10. Never throw an axe.
11. When handing an axe to someone, always extend the handle to him and turn the blade away from your body.
12. When carrying an axe, the blade should always be well covered. A leather cover is excellent. A piece of hose may be split and slipped over the blade.

Types of Knives:

1. Common sheath knife - used extensively in camping, fishing, and hunting.
2. Clasp knife - the blade folds into the handle for safety.
3. Machette - long bladed knife used for cutting through brush and clearing of a camp site.

Sharpening a Knife:

Basically the same method as in sharpening an axe.

Safety When Using Knives:

1. Never be careless when using a knife.
2. Never throw a knife.
3. Always cut away from your body or hand.
4. Keep the knife in its sheath when not in use.
5. When handing a knife to someone, always extend the handle to him and hold the back of the blade.

* * * * *

SHELTERS AND OUTDOOR SKILLS

INTRODUCTION

The first thing a camper looks for on reaching his destination is shelter. As you are hiking in the early afternoon, start your search for a good campsite. If you see one about 3 o'clock, do not push on but camp and make an early start the next day. The following factors should be considered in your search:

1. Drinking water.
2. Wood supply.
3. Adequate protection from the elements.

(a) Summer - Find an open spot, on high well-drained ground, near trees but usually not under them; for trees drip long after the rain stops, falling dead branches are dangerous, and there is a lightning hazard.

(b) Winter - Look for protection in a thick forest, in the hollows and protected valleys, out of the wind, where heat can be preserved and shelter can be gained from the elements. Under a thick spruce tree, is good, or dig a hollow out down into the snow.

As stated before when the hikers find a suitable spot the best plan is to stop and set up camp. It is better to get settled early in a comfortable camp than to stumble around in the dark.

TYPE OF MATERIALS

1. Shelters can be made from whatever material the environment provides; wood, leaves, grass, rock, and hollow trees.
2. Plastic sheeting, light-weight nylon or silk that is water-proof, or canvas can all be used to construct simple shelters for protection. The plastic sheeting is the cheapest and also light.
3. Tents are frequently used because they provide good shelter and protection against insects. The tents used should be in accordance with the type of camping to be done.
 - (a) For back-packing, a pup tent, or Wedge A tents are excellent.
 - (b) The shelter half tents are good in cool weather particularly if one wishes to heat the inside with the campfire.
 - (c) Wall tents and umbrella tents are best where one is car camping.

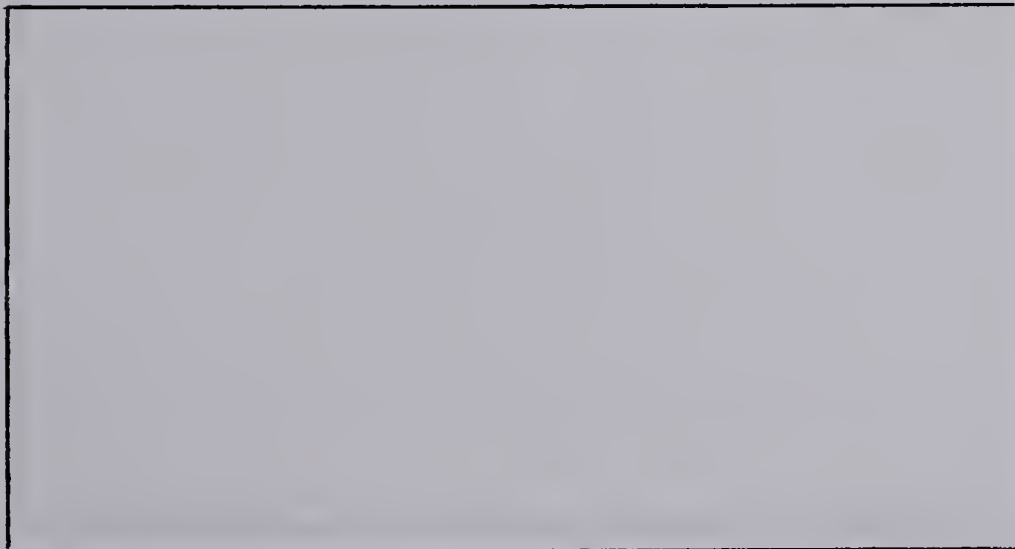
FOUR TYPES OF CONSTRUCTION

1. A wind fall can be used as a shelter. The bottom branches are cut off and more are placed on the sides, with moss, grass, leaves, or other woods material for protection.



Student's Diagram

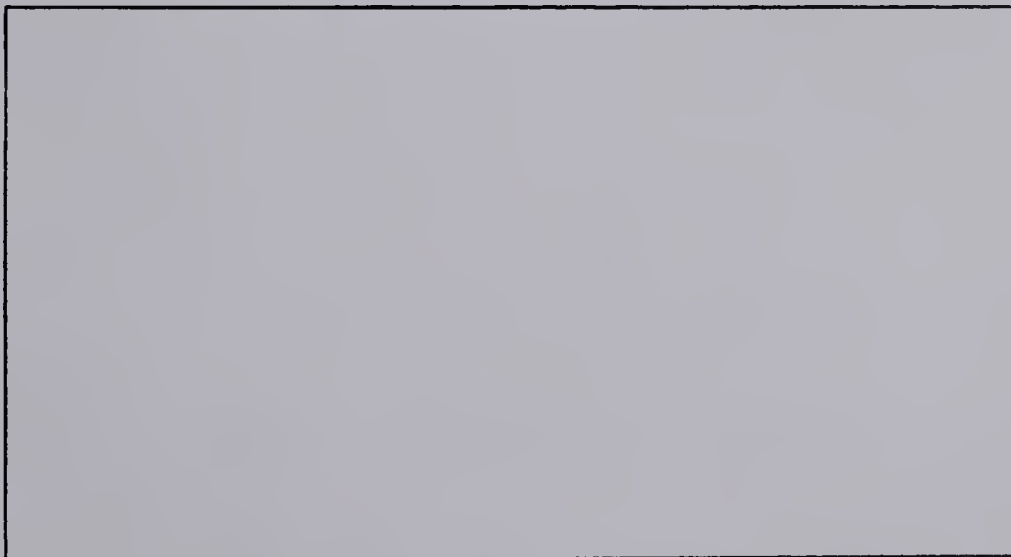
2. Use a large piece of canvas or polyethylene to build a protective covering. You only have rocks, and a log.



3. A lean-to made out of poles and a tarpaulin.



4. The type of tent you would use on a back-packing trip into the mountains.



APPENDIX G

ATTITUDE SCALE PRE-TEST I

(Revised)

SOME ATTITUDE COMPONENTS OF ASCHOOL CAMP SITUATION

NAME _____ GRADE _____

AGE ON LAST BIRTHDAY _____ NUMBER OF MONTHS SINCE LAST BIRTHDAY _____ SEX -- BOY OR GIRL _____

ADDRESS _____ SCHOOL _____

TEACHER _____ DATE _____

Directions:

1. Print your name, grade, etc., in the proper blanks above.
2. You are helping to make a test which will tell how children really feel about Science, Social Studies, Conservation, and Outdoor and Campcraft skills. It is important that you put down how you really feel about the statements in this booklet.
3. Do not turn this page until the teacher gives you the signal. He/she will give you the time needed. When you have finished a page put your pencil down and wait until the signal is given to turn to the next page. When the signal is given you must start immediately on the next page.
4. Here is a sample statement:

"I like camping"

Strongly				Strongly
Agree	Agree	Undecided	Disagree	Disagree
1	2	3	4	5

If you strongly agree with this statement you circle number one 1; however if you strongly disagree you would have circled number five 5.

5. If you make a mistake and want to choose another number cross out your first choice (in this case X) and choose another number.
6. You must clearly understand every statement before answering. If you cannot understand the meaning of a word or sentence, raise your hand.

Note -- The code numbers underlined in the following pages indicate those items that formed scales.

Code No.	Science	Strongly Agree	Agree	Un- decided	Dis- agree	Strongly Disagree
<u>9</u>	1. I like listening to scientific talks on the radio or T.V....	1	2	3	4	5
<u>10</u>	2. I don't like to talk to others about science.....	1	2	3	4	5
<u>11</u>	3. Even if I was given a microscope I would not use it.....	1	2	3	4	5
12	4. I like watching the weather man on T.V..	1	2	3	4	5
<u>13</u>	5. I want to learn more about rivers, deserts and mountains.....	1	2	3	4	5
14	6. I like to read about the way the different parts of the body work.....	1	2	3	4	5
<u>15</u>	7. I would like collecting insects, birds nests, or animal fossils.....	1	2	3	4	5
16	8. I wouldn't like to make a bird feeding station.....	1	2	3	4	5
17	9. I don't care to visit the zoo.....	1	2	3	4	5
<u>18</u>	10. I would like to use field glasses to study nature.....	1	2	3	4	5
19	11. I don't like walking in the woods.....	1	2	3	4	5
20	12. I often think about how the earth, the sun, and the stars came to be.....	1	2	3	4	5

Code No.	Social Studies	Strongly Agree	Agree	Un- decided	Dis- agree	Strongly Disagree
<u>21</u>	1. I would like to study about Indian people, their customs, hunting, dances, etc.....	1	2	3	4	5
22	2. I am not interested in reading about other lands.....	1	2	3	4	5
<u>23</u>	3. I want to study more about how the pioneers lived.....	1	2	3	4	5
<u>24</u>	4. I would like to dig for ancient arrow heads or dinosaur bones...	1	2	3	4	5
25	5. I like to read maps and draw them.....	1	2	3	4	5
<u>26</u>	6. I would like to explore the hills to find different types of rock.....	1	2	3	4	5
<u>27</u>	7. I would like to read about how people farm in other countries..	1	2	3	4	5
28	8. I don't like studying the weather.....	1	2	3	4	5
<u>29</u>	9. I would go to a movie to see how the plains, foothills and mountains were formed...	1	2	3	4	5
30	10. Extra work in Geography is a waste of time.....	1	2	3	4	5
31	11. Seeing logs cut into lumber does not interest me.....	1	2	3	4	5
32	12. I would not watch a movie about the Drumheller badlands.	1	2	3	4	5

Code No.	Conservation	Strongly Agree	Agree	Un- decided	Dis- agree	Strongly Disagree
33	1. Camping should be stopped in our provincial forests when fire danger is great.	1	2	3	4	5
34	2. A person should be able to hunt every day of the year.....	1	2	3	4	5
35	3. All birds should be protected by laws...	1	2	3	4	5
36	4. If you catch a fish under 6 inches you should be able to keep it.....	1	2	3	4	5
37	5. Most wild flowers should be picked....	1	2	3	4	5
<u>38</u>	6. All snakes should be killed.....	1	2	3	4	5
<u>39</u>	7. Birds egg collecting is a good hobby.....	1	2	3	4	5
<u>40</u>	8. I want to be a forest ranger, biologist, or person working with nature.....	1	2	3	4	5
41	9. The best way to get rid of garbage in the country is to throw it in a lake.....	1	2	3	4	5
<u>42</u>	10. Live trees should not be cut just for chopping practice.....	1	2	3	4	5
43	11. When you leave a campsite you must put out your campfire...	1	2	3	4	5
<u>44</u>	12. Wild animals should be protected.....	1	2	3	4	5
<u>45</u>	13. I would like to help plant trees to prevent soil drifting..	1	2	3	4	5

Code No.	Attitude Toward Others	Strongly Agree	Agree	Un- decided	Dis- agree	Strongly Disagree
46	1. I have as much fun playing alone as with others.....	1	2	3	4	5
<u>47</u>	2. I feel others have no right to tell me what to do.....	1	2	3	4	5
48	3. If I saw a small boy being beat up by a large boy I would not help the small boy..	1	2	3	4	5
<u>49</u>	4. I like to share my things with other kids.....	1	2	3	4	5
50	5. If I win a game I always like to tell everyone.....	1	2	3	4	5
51	6. All rules should be followed.....	1	2	3	4	5
52	7. Once the group de- cides on doing some- thing we should all support it.....	1	2	3	4	5
53	8. On a walking hike the slowest person should set the pace.....	1	2	3	4	5
<u>54</u>	9. I like to help wash the dishes and make my bed.	1	2	3	4	5
55	10. If another person leaves money on the table I have a right to keep it.....	1	2	3	4	5
56	11. If I saw a person stealing I would re- port him.....	1	2	3	4	5
<u>57</u>	12. I would not loan my flashlight to another person if they needed it at night.....	1	2	3	4	5
<u>58</u>	13. I try to make friends with lonely kids....	1	2	3	4	5

Code No.	Outdoor and Campcraft Skills	Strongly Agree	Agree	Un- decided	Dis- agree	Strongly Disagree
59	1. I like to cook my own meals out-of-doors whenever I get the chance.....	1	2	3	4	5
<u>60</u>	2. I would like to go camping with my school mates.....	1	2	3	4	5
<u>61</u>	3. It would be fun to make tin-can cooking utensils.....	1	2	3	4	5
<u>62</u>	4. If I could, I would work during the summer clearing brush from hiking trails..	1	2	3	4	5
63	5. Sitting around a campfire at night brings people closer in friendship.....	1	2	3	4	5
<u>64</u>	6. It would be fun to be a mountain climber or skier.....	1	2	3	4	5
<u>65</u>	7. I like to cut my initials on a tree before leaving a camping spot.....	1	2	3	4	5
66	8. I like walking in the woods in the early morning.....	1	2	3	4	5
67	9. If I saw a baby rabbit I would try to catch it.....	1	2	3	4	5
68	10. I would like to join an outdoor club but not if it interfered with my Saturday show.	1	2	3	4	5
69	11. Wood carving is a good hobby.....	1	2	3	4	5
70	12. I dislike following trail signs through the woods.....	1	2	3	4	5

APPENDIX H

ATTITUDE SCALE PRE-TEST II

(Revised)

SOME ATTITUDE COMPONENTS

TIME 40 MIN.

ON OUTDOOR EDUCATION

NAME _____ GRADE _____

AGE ON LAST BIRTHDAY _____ NUMBER OF MONTHS SINCE LAST BIRTHDAY _____ SEX — BOY OR GIRL _____

ADDRESS _____ SCHOOL _____

TEACHER _____ DATE _____

WHAT IS YOUR FATHER'S WORK? _____

HAVE YOU BEEN CAMPING BEFORE? (YES) (NO) IF YES, WHERE? _____

HOW LONG? _____

Directions:

1. Print you name (surname first), grade, etc. in the proper blank spaces above, and answer the two questions.
2. This is a test to tell how you really feel about the Out-of-doors. It is important that you put down how strongly you feel about each statement.
3. Do not turn the page until the teacher gives you the signal to start. When you finish a page put down your pencil and wait until the signal is given to turn to the next page.

4. Here is a sample question:

	strongly				strongly
I like watching birds	agree	agree	undecided	disagree	disagree
	1	2	3	4	5

If you strongly agree with this statement, circle number one 1; however, if you have other feelings circle the number that tells how you feel about this statement.

5. If you make a mistake and want to choose another number, cross out your first choice (in this case X) and choose another number.
6. You must understand clearly every statement before answering. If you cannot understand the meaning of a word or sentence raise your hand.

Note --- The first six items on each page are taken from Test I in Appendix G.

Code No.			Strongly Agree	Agree	Un- decided	Dis- agree	Strongly Disagree
9	1.	I like listening to scientific talks on the radio or T.V....	1	2	3	4	5
10	2.	I don't like to talk to others about science.	1	2	3	4	5
11	3.	I would like collecting insects, empty bird's-nests and fossils...	1	2	3	4	5
12	4.	I would like to use field glasses to study nature.....	1	2	3	4	5
13	5.	Even if I was given a microscope I would not use it.....	1	2	3	4	5
14	6.	I want to learn more about rivers, deserts, and mountains.....	1	2	3	4	5
15	7.	I would walk a mile to watch birds nesting.	1	2	3	4	5
16	8.	I would walk more than a mile to watch birds nesting, even if it was cold.....	1	2	3	4	5
17	9.	Watching tadpoles, fish or pond life, isn't very interesting.	1	2	3	4	5
18	10.	I like looking at trees and plants....	1	2	3	4	5
19	11.	I would like to see a movie on how trees and plants grow.....	1	2	3	4	5
20	12.	I want to study about trees and plants....	1	2	3	4	5
21	13.	I would like to learn all the names of the trees and write a test on them.....	1	2	3	4	5
22	14.	I am going to memorize and learn as much about trees and plant life as I possibly can...	1	2	3	4	5

Code No.			Strongly Agree	Agree	Un- decided	Dis- agree	Strongly Disagree
23	1.	I would like to read about how people farm in other countries..	1	2	3	4	5
24	2.	I would go to a movie to see how the plains, foothills and mountains were formed.....	1	2	3	4	5
25	3.	I would like to study what Indian peoples did in the past.....	1	2	3	4	5
26	4.	I would like to explore the hills, to find different types of rocks.....	1	2	3	4	5
27	5.	I would like to dig for ancient arrow heads or dinosaur bones.....	1	2	3	4	5
28	6.	Studying about how the pioneers lived is interesting.....	1	2	3	4	5
29	7.	I often ask my father to stop the car so we can read road signs about the history of Alberta.....	1	2	3	4	5
30	8.	I would spend time trying to find a monument about early pioneers of Alberta.	1	2	3	4	5
31	9.	I would only go to see a museum if it were close to where I lived.	1	2	3	4	5
32	10.	Being able to read a topographical map about Alberta helps us understand her people....	1	2	3	4	5
33	11.	It is important that students be able to understand land forms such as valleys and mountains.	1	2	3	4	5
34	12.	Maps are interesting, but we could better spend our time studying other subjects.	1	2	3	4	5

Code No.		Strongly Agree	Agree	Un- decided	Dis- agree	Strongly Disagree
35	1. I want to be a forest ranger, biologist, or person working with nature.....	1	2	3	4	5
36	2. All snakes should be killed.....	1	2	3	4	5
37	3. Birds' egg collecting is a good hobby.....	1	2	3	4	5
38	4. Live trees should not be cut down just for chopping practice...	1	2	3	4	5
39	5. I would like to help plant trees to prevent soil from blowing away.	1	2	3	4	5
40	6. Wild animals should be protected.....	1	2	3	4	5
41	7. I like to cut my name on a tree before leaving a camping spot.....	1	2	3	4	5
42	8. If I could I would work all the summer clearing brush from hiking trails.	1	2	3	4	5
43	9. I would go to a film on forest fire fighting.	1	2	3	4	5
44	10. I would carry water one mile to put out my campfire.....	1	2	3	4	5
45	11. I would feel rather disappointed if I had to spend my holidays learning how to protect forests from fire....	1	2	3	4	5
46	12. If I was to catch more fish than the limit, I would try to keep them.....	1	2	3	4	5
47	13. If I caught one more fish than the limit I would feel unhappy about letting it go.	1	2	3	4	5
48	14. If I saw a Prairie chicken standing on a bush trail I would try to kill it.....	1	2	3	4	5

Code No.		Strongly Agree	Agree	Un- decided	Dis- agree	Strongly Disagree
49	1. I feel that kids have no right to tell me what to do.....	1	2	3	4	5
50	2. I like to help wash dishes and make my bed.	1	2	3	4	5
51	3. I would not loan my flashlight to another person, even if he need- ed it at night.....	1	2	3	4	5
52	4. I try to make friends with lonely kids....	1	2	3	4	5
53	5. I like to share my things with other kids.	1	2	3	4	5
54	6. I would rather play alone sometimes than with others.	1	2	3	4	5
55	7. If I win a game, I like people to ask me about it.	1	2	3	4	5
56	8. If I found some money, I would feel disappointed if I had to share it with others.....	1	2	3	4	5
57	9. I am always at least a little disappointed if I meet someone who doesn't like me.....	1	2	3	4	5
58	10. I can't stand the thought that a good friend of mine would turn against me.....	1	2	3	4	5
59	11. I often find I am angry if I lose a game with another person.....	1	2	3	4	5

Code No.		Strongly Agree	Agree	Un- decided	Dis- agree	Strongly Disagree
60	1. Once the group decides on doing something we should all support it strongly.....	1	2	3	4	5
61	2. If our group decides to do something, those against should only go along.....	1	2	3	4	5
62	3. If the class decides to start a project only those strongly in favor should give support.....	1	2	3	4	5
63	4. If a cabin group decides to go on a hike, those voting against, should do something else.....	1	2	3	4	5
64	5. Once a cabin group has chosen a leader they should always do exactly what he says.....	1	2	3	4	5
65	6. In a democratic group the leader should be told what to do by the members.	1	2	3	4	5
66	7. Every member of a group should have the right to say what he likes in a group....	1	2	3	4	5
67	8. I don't believe in doing what my team wants to do.....	1	2	3	4	5
68	9. As long as the team listens to my side of the story, I am willing to support what the majority wants to do.....	1	2	3	4	5

Code No.		Strongly Agree	Agree	Un- decided	Dis- agree	Strongly Disagree
3	1. To be able to look after ones' self in the out-of-doors is important.....	1	2	3	4	5
4	2. Learning to follow a compass direction is needed often to keep from getting lost in the woods.....	1	2	3	4	5
5	3. Shelters made from canvas and branches are not too important for survival....	1	2	3	4	5
6	4. I would be disappointed if I was not given a chance to learn how to make outdoor shelters.	1	2	3	4	5
7	5. I could get along in the out-of-doors without learning how to use an axe or knife.....	1	2	3	4	5
8	6. The ability to forecast weather is fairly valuable for out-doors people.....	1	2	3	4	5
9	7. I would not be too interested in learning about First Aid.....	1	2	3	4	5
10	8. I would like to make tin-can cooking utensils.	1	2	3	4	5
11	9. The skill in following trail signs through the woods is not too valuable.	1	2	3	4	5
12	10. I would not be too disappointed if I did not learn about the habits of birds and wild animals.	1	2	3	4	5
13	11. I want to spend time learning the safety skills of boating...	1	2	3	4	5

Code No.		Strongly Agree	Agree	Un- decided	Dis- agree	Strongly Disagree
14	1. Walking in the woods in the early morning makes one think of the Creator.....	1	2	3	4	5
15	2. Sitting around a camp- fire at night helps people be more friendly.	1	2	3	4	5
16	3. Watching clouds drift by and listening to the wind in the pines should inspire one to write poetry or think great thoughts.....	1	2	3	4	5
17	4. The frogs croaking at night and the silver of the moon on water makes me feel a part of all of nature.....	1	2	3	4	5
18	5. Sleeping outside under the stars helps me think of the greatness of God.	1	2	3	4	5
19	6. In the morning when the birds begin to sing, and squirrels to chirp, I would like to creep out and watch them.....	1	2	3	4	5
20	7. I would like to be able to paint a sunset...	1	2	3	4	5
21	8. A campsite with tin cans lying around makes me want to clean it up.	1	2	3	4	5
22	9. I don't really care to just watch a spider spinning his web....	1	2	3	4	5
23	10. There are really more im- portant things to do than watch birds and butter- flies.....	1	2	3	4	5
24	11. I get a special feeling inside when the silence of the evening creeps across the sky.....	1	2	3	4	5

APPENDIX I

ATTITUDE SCALE FOR TEST GROUP

SOME ATTITUDE COMPONENTS

TIME 40 MIN.

ON OUTDOOR EDUCATION

NAME _____ GRADE _____

AGE ON LAST BIRTHDAY _____ NUMBER OF MONTHS SINCE LAST BIRTHDAY _____ SEX — BOY OR GIRL _____

ADDRESS _____ SCHOOL _____

TEACHER _____ DATE _____

WHAT IS YOUR FATHER'S WORK? _____

DOES YOUR FAMILY GO CAMPING? (YES) (NO) IF YES WHAT KIND? _____

_____ HAVE YOU ATTENDED CHURCH, SCOUT,
 Y.M.C.A., OR ANY OTHER TYPE OF ORGANIZED CAMP BEFORE? (YES)(NO) IF YES,
 WHAT TYPE AND HOW LONG? _____

Directions:

1. Print your name (surname first), grade, etc. in the proper blank spaces above, and answer the two questions.
2. This is a test to tell how you really feel about the Out-of-doors. It is important that you put down how strongly you feel about each statement.
3. Do not turn the page until the teacher gives you the signal to start. When you finish a page put down your pencil and wait until the signal is given to turn to the next page.

4. Here is a sample question:

	strongly		dis-	strongly
I like watching birds	agree	agree	undecided	agree
	1	2	3	4
				5

If you strongly agree with this statement, circle number one 1; however, if you have other feelings circle the number that tells how you feel about this statement.

5. If you make a mistake and want to choose another number cross out (X) your first choice and circle another number.
6. You must understand clearly every statement before answering. If you cannot understand the meaning of a word or sentence raise your hand.

Code No.			Strongly Agree	Agree	Un- decided	Dis- agree	Strongly Disagree
13	1.	I like looking at trees and plants...	1	2	3	4	5
14	2.	I would like to see a movie on how trees and plants grow...	1	2	3	4	5
15	3.	I want to study about trees and plants...	1	2	3	4	5
16	4.	I would like to learn all the names of the trees and write a test on them.....	1	2	3	4	5
17	5.	I am going to memorize and learn as much about trees and plant life as I possibly can.....	1	2	3	4	5
18	6.	I want to collect leaves from trees and plants and put them in a field book.....	1	2	3	4	5
19	7.	I would like collect- ing insects, empty bird's-nests, and fossils.....	1	2	3	4	5
20	8.	I would walk a mile to watch birds nesting.....	1	2	3	4	5

...continued

Code No.			Strongly Agree	Agree	Un- decided	Dis- agree	Strongly Disagree
21	9.	I would walk more than a mile to watch birds nesting, even if it was cold.....	1	2	3	4	5
22	10.	Watching tadpoles, fish or pond life, isn't very interest- ing.....	1	2	3	4	5
23	11.	I want to study about birds and animals.....	1	2	3	4	5
24	12.	I would like to read a book about birds, animals and fish....	1	2	3	4	5
25	13.	I would like to spend some of my spare time looking for animals and birds in the woods..	1	2	3	4	5
26	14.	I would like to spend time after school and weekends learning about birds and insects...	1	2	3	4	5

Code No.		Strongly Agree	Agree	Un- decided	Dis- agree	Strongly Disagree
27	1. Birds' egg collecting is a good hobby.....	1	2	3	4	5
28	2. Wild animals should be protected.....	1	2	3	4	5
29	3. I like to cut my name on a tree before leav- ing camping spot....	1	2	3	4	5
30	4. If I saw a prairie chicken standing on a bush trail, I would try to kill it.....	1	2	3	4	5
31	5. If I was to catch more fish than the limit, I would try to keep them.....	1	2	3	4	5
32	6. Live trees should not be cut down just for fun.....	1	2	3	4	5
33	7. I would attend a lesson an hour to prevent forest fires.....	1	2	3	4	5

...continued

Code No.		Strongly Agree	Agree	Un- decided	Dis- agree	Strongly Disagree
34	8. I would like to see a movie on how to prevent forest fires.	1	2	3	4	5
35	9. I want to study about fire prevention.....	1	2	3	4	5
36	10. I would like to spend a week at a special school learning how to fight forest fires.....	1	2	3	4	5
37	11. I would like to be a forest ranger when I grow up.....	1	2	3	4	5
38	12. I would like to take a course on fire prevention at school and write a test on it.....	1	2	3	4	5
39	13. I like to clean up rubbish left at a campsite.....	1	2	3	4	5
40	14. I sometimes clean up garbage left at a campsite and bury it.	1	2	3	4	5

Code No.		Strongly Agree	Agree	Un- decided	Dis- agree	Strongly Disagree
41	1. I often ask my father to stop the car so we can read road signs about the history of Alberta.....	1	2	3	4	5
42	2. I would spend time trying to find a monument about early pioneers of Alberta.....	1	2	3	4	5
43	3. I would like to read about how people farm in other countries..	1	2	3	4	5
44	4. Studying about how the pioneers lived is interesting.....	1	2	3	4	5
45	5. I would like to study what Indian people did in the past.....	1	2	3	4	5
46	6. I would like to learn about some of Alberta's early settlers.....	1	2	3	4	5
47	7. I would like to study all there is to know about the early history of Alberta and write a test on it..	1	2	3	4	5
48	8. I want to learn more about rivers, deserts, and mountains.....	1	2	3	4	5
49	9. I would go to a movie on the formation of the plains, foothills, and mountains.....	1	2	3	4	5

...continued

Code No.		Strongly Agree	Agree	Un- decided	Dis- agree	Strongly Disagree
50	10. I would like to give a long report to the class on land forms, such as the difference between a wide valley or a high mountain.....	1	2	3	4	5
51	11. I would like to spend extra time after school studying topographical maps in order to understand Canada's valleys and mountains.	1	2	3	4	5
52	12. I want to be geologist or person who works with maps and land forms.....	1	2	3	4	5
53	13. I would like to collect pictures of the mountains, valleys, plains, and plateaus of other countries.....	1	2	3	4	5
54	14. I would like to make models of land forms.	1	2	3	4	5

Code No.		Strongly Agree	Agree	Un- decided	Dis- agree	Strongly Disagree
55	1. I feel other kids have no right to tell me what to do..	1	2	3	4	5
56	2. If I found some money I would feel disappointed if I had to share it with others.....	1	2	3	4	5
57	3. I try to make friends with lonely kids.....	1	2	3	4	5
58	4. I like to share my things with other kids.....	1	2	3	4	5
59	5. I would rather play alone sometimes than with others.....	1	2	3	4	5
60	6. If I found chocolate bars I would not share them with anyone.....	1	2	3	4	5
61	7. I would not loan my flashlight to another even if he needed it at night.....	1	2	3	4	5

...continued

Code No.		Strongly Agree	Agree	Un- decided	Dis- agree	Strongly Disagree
62	8. In a line up for hot dogs I would try to sneak to the front ahead of the rest...	1	2	3	4	5
63	9. I sometimes help with work around the home, such as washing dishes.....	1	2	3	4	5
64	10. I like to volunteer to help with chores around the home.....	1	2	3	4	5
65	11. If I stay at a friends house I try to make my bed and help with the work..	1	2	3	4	5
66	12. I like to be asked, before helping with chores around the home.....	1	2	3	4	5
67	13. I really don't like doing chores at home, school or any other place.....	1	2	3	4	5
68	14. I would let my mother do the dishes even if she was tired....	1	2	3	4	5

Code No.		Strongly Agree	Agree	Un- decided	Dis- agree	Strongly Disagree
3	1. If I lose a game with others, I often find my feelings are hurt.	1	2	3	4	5
4	2. If I lose a game, I sometimes feel angry inside.....	1	2	3	4	5
5	3. If I don't win, I always feel angry inside.....	1	2	3	4	5
6	4. If I lose a game, I usually want to try harder next time....	1	2	3	4	5
7	5. If I lose a game, I congratulate the winners.....	1	2	3	4	5
8	6. I don't like to lose a game, but if I do I know I need to improve.	1	2	3	4	5
9	7. If I win a game, I always like to tell others how well I did.	1	2	3	4	5
10	8. If I win a game, I like to tease the losers.	1	2	3	4	5
11	9. If I win a game, I expect others to tell me how good I was.....	1	2	3	4	5
12	10. If I win a game I feel happy, but also humble inside.....	1	2	3	4	5

Code No.		Strongly Agree	Agree	Un- decided	Dis- agree	Strongly Disagree
13	1. I would like to learn how to make outdoor shelters....	1	2	3	4	5
14	2. I will study books to find out how to make outdoor shelters	1	2	3	4	5
15	3. I would like to give a report on outdoor shelters to the class.....	1	2	3	4	5
16	4. I would like to build an outdoor shelter even if it was cold.....	1	2	3	4	5
17	5. I would like to sleep in an outdoor shelter even if it was raining or snowing.....	1	2	3	4	5
18	6. I would like to sleep in an outdoor shelter even if the mosquitos and black flies were biting.....	1	2	3	4	5
19	7. I would like to learn how to use a compass.	1	2	3	4	5

...continued

Code No.		Strongly Agree	Agree	Un- decided	Dis- agree	Strongly Disagree
20	8. I would attend a lesson on compass reading, instead of going to my Saturday show.....	1	2	3	4	5
21	9. I would buy a good compass instead of spending my \$6 on some other item I wanted.....	1	2	3	4	5
22	10. I want to follow a compass line, even if I have to tramp through thorns, heavy bush and risk being stung by wasps.....	1	2	3	4	5
23	11. After I finish a course on compass work I would like to write a test on my knowledge.....	1	2	3	4	5
24	12. If I could I would do most of the work in my cabin group in building an outdoor shelter.....	1	2	3	4	5
25	13. Compass work is so interesting I would gladly write an essay on it for the school paper.....	1	2	3	4	5

Code No.		Strongly Agree	Agree	Un- decided	Dis- agree	Strongly Disagree
26	1. I don't really care to just watch a spider spinning his web.....	1	2	3	4	5
27	2. There are really more important things to do than to watch birds and butterflies.....	1	2	3	4	5
28	3. A campsite with tin cans lying around makes me want to clean it up.	1	2	3	4	5
29	4. Walking in the woods in the early morning makes one think of the Creator.	1	2	3	4	5
30	5. I get a special feeling inside when the silence of the evening creeps across the sky.....	1	2	3	4	5
31	6. In the morning when the birds begin to sing, and squirrels to chatter, I would like to creep out and watch them.....	1	2	3	4	5
32	7. I like to just sit watching the clouds drift by and listening to the wind in the pines.....	1	2	3	4	5
33	8. I would rather watch T.V. or a movie than the mystery of an evening sunset.....	1	2	3	4	5
34	9. The frogs croaking at night and the silver of the moon on water makes me want to cover my ears and go to sleep.....	1	2	3	4	5

APPENDIX J

SOCIOMETRIC PRE-TEST

SOCIOMETRIC SCALE I

NAME _____

DATE _____

During the remainder of the term we will be continuing our study of interesting things about school camping. Since we will be doing some things together as groups, I want you to help me arrange them. You can do this by writing the names of the children you would like to have sit near you, to have work with you, and to have play with you. You may choose anyone in this room you wish, including those pupils who are absent. Your choices will not be seen by anyone else. Give first name and initial of last name.

Make your choices carefully so the groups will be the way you really want them. I will try to arrange the groups so that each pupil gets at least two of his choices. Sometimes it is hard to give everyone his first few choices, so be sure to make five choices for each question.

Remember:

1. Your choices must be from pupils in this room, including those who are absent.
2. You should give the first name and the initial of the last name.
3. You should make all five choices for each question.
4. You may choose a pupil for more than one group if you wish.
5. Your choices will not be seen by anyone else.

I would choose to sit near these children:

- | | |
|----------|----------|
| 1. _____ | 3. _____ |
| 2. _____ | 4. _____ |
| 5. _____ | |

I would choose to work with these children:

- | | |
|----------|----------|
| 1. _____ | 3. _____ |
| 2. _____ | 4. _____ |
| 5. _____ | |

I would choose to play with these children:

- | | |
|----------|----------|
| 1. _____ | 3. _____ |
| 2. _____ | 4. _____ |
| 5. _____ | |

I would choose to play ball with these children:

- | | |
|----------|----------|
| 1. _____ | 3. _____ |
| 2. _____ | 4. _____ |
| 5. _____ | |

APPENDIX K

SOCIOMETRIC POST-TEST

SOCIOMETRIC SCALE II

NAME _____

DATE _____

During the remainder of the term we will be continuing our study of interesting things about school camping. Since we will be doing some things together as groups, I want you to help me arrange them. You can do this by writing the names of the children you would like to have sit near you, to have work, with you, and to have play with you. You may choose anyone in this room you wish, including those pupils who are absent. Your choices will not be seen by anyone else. Give first name and initial of last name.

Make your choices carefully so the groups will be the way you really want them. I will try to arrange the groups so that each pupil gets at least two of his choices. Sometimes it is hard to give everyone his first few choices, so be sure to make five choices for each question.

Remember:

1. Your choices must be from pupils in this room, including those who are absent.
2. You should give the first name and the initial of the last name.
3. You should make all five choices for each question.
4. You may choose a pupil for more than one group if you wish.
5. Your choices will not be seen by anyone else.

I would choose to sit near these children:

- | | |
|----------|----------|
| 1. _____ | 3. _____ |
| 2. _____ | 4. _____ |
| 5. _____ | |

I would choose to work with these children:

- | | |
|----------|----------|
| 1. _____ | 3. _____ |
| 2. _____ | 4. _____ |
| 5. _____ | |

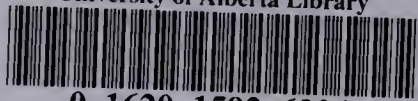
I would choose to play with these children:

- | | |
|----------|----------|
| 1. _____ | 3. _____ |
| 2. _____ | 4. _____ |
| 5. _____ | |

I would choose to play ball with these children:

- | | |
|----------|----------|
| 1. _____ | 3. _____ |
| 2. _____ | 4. _____ |
| 5. _____ | |

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